TEXTILE WORLD

A McGraw-Hill Publication ---------- MARCH • 1948

TEXTILE WORLD'S CONTINUOUS-FILAMENT FLOW CHART

Pages 103-108

UALITY-CONTROL CHARTS Aid Carding and Spinning

wor ying about normal variations — concen- on trends or operating conditions that are bad, if any, in your carding and spinning . Principles that can be applied to many tex- ations will be found on . . . . . page 111

FLAMMABILITY Varies With Type Test and Fabric

Fabric-flammability laws, enacted and pending, are already influencing processing that mills are being called upon to do. Your fabrics may or may not be called hazardous depending on the test used. For details see . . . . . page 109

Voluntary Standards Set For FULL-FASHIONED Hosiery

Stockings that are sure to fit the average leg — that will pass established tests — are assured if knitting standards, preboarding, boarding, and other procedures are followed out as presented in the article starting on . . . . . page 124

Commercial FACTORING

More and more, the word "COMMERCIAL" is recognized as the "distinguishing mark" in factoring. It is the symbol of long experience, complete facilities and resources, and a knowledge of every branch of the textile industry.

We will gladly explain in detail what *COMMERCIAL FACTORING* can mean to your business in new opportunities and increased profits.

COMMERCIAL FACTORS CORPORATION

Fred'k Victor & Achelis, Inc. Established 1828 | Schefer, Schramm & Vogel Established 1838 | Peierls, Buhler & Co., Inc. Established 1893

TWO PARK AVENUE, NEW YORK

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T. HOLT HAYWOOD, WINSTON-SALEM, NORTH CAROLINA

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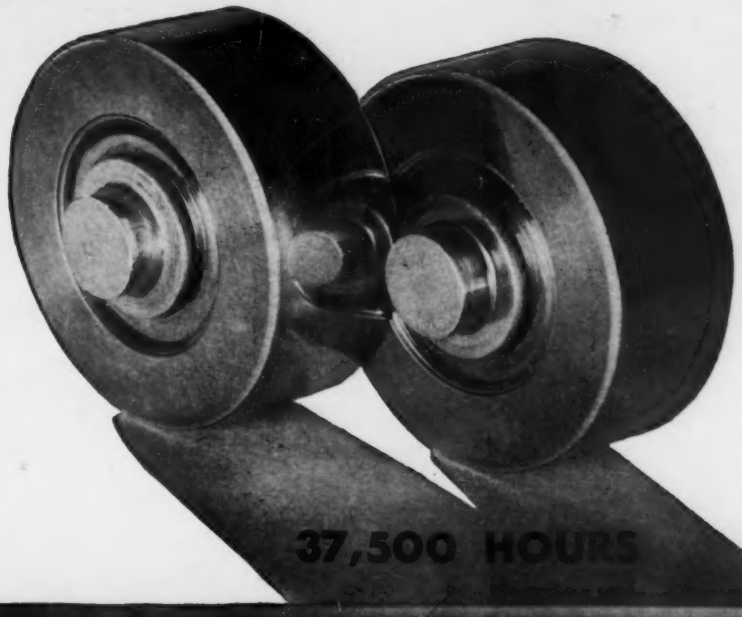
Proven By



D

Anti friction bearing treadle rolls have proven themselves. Rolls shown above ran 37,500 hours. New Departure Engineers estimate they would run another 20,000. Think of it. 57,500 hours!

Check these advantages.

High carbon, heat treated chrome steel enables roll surface to withstand severe shock and wear.

Double felt, labyrinth seals keep dirt and lint out, while preventing leakage of permanent lubricant. No internal greasing or oiling necessary.

Extra large balls rolling in smooth, hardened raceways give longer life on the heaviest weaves.

Round pins permit roll to seat itself in treadle pocket. This combination will not lock, eliminating danger of flash fire.

Cut maintenance costs now. Buy Anti friction bearing treadle rolls for all your looms. We can make immediate delivery.

DRAPER CORPORATION

isn't that the Mathieson Plant?

"It's one of them, Mr. Jones—the Niagara Falls plant."

Yes, Mr. Jones and there's another at Saltville, Va., to serve the southeast, and a third at Lake Charles, La., serving the southwest. With three plants, Mathieson offers triple flexibility in deliveries of caustic soda. Call it three sources of supply. That's why weather, breakdowns, railroad or labor conditions seldom keep Mathieson from making prompt deliveries.

The Mathieson Alkali Works (Inc.), 60 East 42nd Street, New York 17, N. Y.

Caustic Soda...Soda Ash...Bicarbonate of Soda...Liquid Chlorine...Chlorine Dioxide Ammonia, Anhydrous & Aqua...HTH Products...Dry Ice...Carbonic Gas...Sodium Chlorite Products...Sodium Methylate.

Mathieson
CHEMICALS

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Classified According to Reader Interest

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THE *Long-Range* VIEW

DOUBLE SPOTLIGHT

The synthetic fibers, principally those the Federal Trade Commission refers to as rayon, are receiving much publicity on two scores: (1) their terminology and (2) their shortage.

At present there is some question as to whether or not the term "rayon" should be applied to acetate fiber. According to the FTC, it should; but in mill operation, as many of the readers of TEXTILE WORLD know, acetate rayon is generally referred to as just "acetate" (and so we testified recently before the FTC). One producer feels the term should be "cellulose acetate"; however, there is little question that the American custom of shortening names will block wide use of the longer appellation. In any event, it is our opinion that, regardless of rulings, the product will continue to be known in the mills—and perhaps popularly—as merely "acetate."

We fail to see how anyone can deny the differences in properties between the viscose and acetate types of yarn. Since there are so many differences between them, we are in complete accord that precise terminology should distinguish between them; and we believe the distinction is needed for the guidance of the consumer, too.

Regardless of what you, as a textile man, think of fiber terminology, you are sure to agree that—whether we are talking about viscose, acetate, cuprammonium, or any other prominent synthetic fiber—there just is not enough to go around. The shortage has been frequently referred to in the columns of TEXTILE WORLD; and this publication has for many years had a bullish viewpoint with respect to the continuing growth of synthetics.

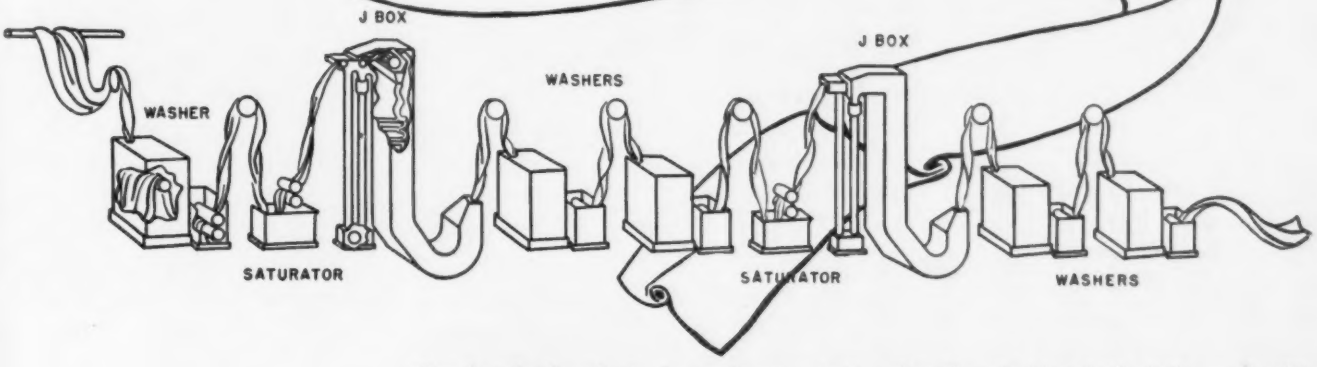
In a booklet now being distributed by Henry Von Kohorn (reviewed briefly on page 248), the present and future shortages of rayon, both domestic and worldwide, are given great emphasis. The findings of the statistical department of Oscar Kohorn & Co., Ltd., as reported in the booklet, are that "with respect to domestic expansion of filament-rayon-yarn and staple-fiber producing facilities, we have found such plans to be totally inadequate to relieve shortages for a number of years to come." Elsewhere in the booklet, we were anonymously quoted as stating that the rayon shortage will continue for a minimum of three years. There has been only one year (1938) when rayon demand and production have failed to grow. Our prophecy of "three years" was by no means meant to indicate a leveling off at that time but rather to suggest a possible hesitation period. That period will, we are sure, be followed by still greater use of synthetic fibers.

It is quite clear that there is not going to be enough rayon to meet the demand for some years to come, especially since everyone seems now to agree that, as we foretold in 1944, cotton is losing its tire-cord market to rayon. Only the shortage of rayon keeps cotton in the picture to the extent that it is today. There is interesting reading on this subject in the testimony before the Special Subcommittee on Cotton of the House Committee on Agriculture.

The story on page 129 of this issue is also enlightening with respect to current fiber trends. Textile men need not allow themselves to remain in the dark. Many signposts guide their future course—signposts that they cannot afford to ignore.

C. H. Bendigo

CONTINUOUS BLEACHING NEEDS "Continuous balance"



One hundred and ninety yards per minute of *uniformly* bleached cloth—and still no indication that the upper limit has been reached. At such tremendous speeds variations in process conditions, principally temperature, can occur swiftly and with great effect on uniformity. Using conventional types of temperature controllers, hundreds of yards could pass critical temperature points such as J-Boxes before the controller would detect and correct temperature changes.

"Continuous Balance", the electronic operating principle of the Brown *ElectroniK* Potentiometer, holds temperatures right on the line despite changes in speed or load conditions. The greater sensitivity and speed of response of the ElectroniK keeps pace with the continuous bleaching system. The ElectroniK places *no limit* on the speed at which the system is operated.

This unchallenged *ElectroniK* is working with the complete line of Brown instruments making complete instrumentation the responsibility of one manufacturer. No wonder the list of concerns who have or are installing complete Brown Instrumentation of continuous bleaching systems reads like a "Who's Who" of top textile producers. Write for Catalog 9305.

Brown *ElectroniK* "Continuous Balance" Potentiometer.

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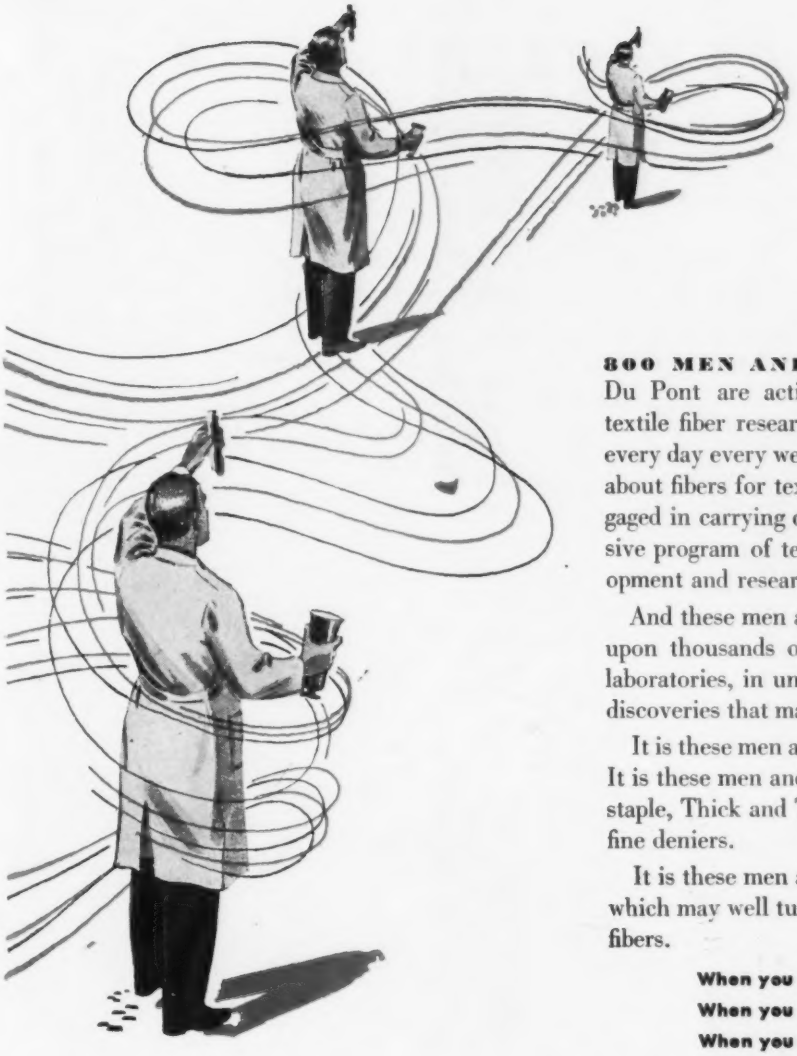
DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR CO.
Offices in principal cities of the United States, Canada and throughout the world.

BROWN *Advanced Instrumentation* FOR BETTER PROCESSING
Product of MINNEAPOLIS Honeywell

800 research brains at work

800 MEN AND WOMEN of Du Pont are actively engaged in textile fiber research. All are busy every day every week learning more about fibers for textiles. All are engaged in carrying out a comprehensive program of textile fiber development and research.

And these men are not alone. Back of them are the thousands upon thousands of Du Pont scientists at work every day—in laboratories, in universities, in factories—who are making basic discoveries that may influence tomorrow's textiles.

It is these men and women who developed and perfected nylon. It is these men and women who have been responsible for rayon staple, Thick and Thin Rayon, high tenacity yarns, and the first fine deniers.

It is these men and women who are working today on projects which may well turn out to be tomorrow's biggest news in textile fibers.

When you need acetate rayon . . .
When you need viscose rayon . . .
When you need nylon . . .
When you need help in where and how to use any of these man-made fibers . . .

} take it up with Du Pont

IT'S A NAME TO DEPEND ON . . . DU PONT!

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For RAYON
For FIBERS to come...look to Du Pont

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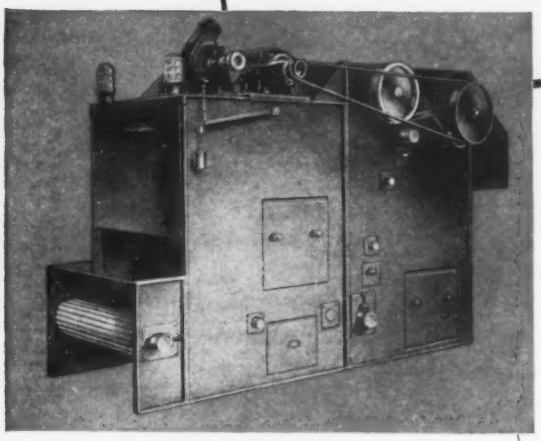
BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

remove DUST and DIRT as soon as possible

The most logical place at which to remove dust and dirt is in the Opening Room. Here the fibers are in a loose condition so that the impurities canbe removed without danger of fiber breakage.

The Saco-Lowell line of modern Opening Equipment consists of four units, each with a distinct purpose...



The F-7 Cleaning and Blending Feeder

The #12 Lattice Opener

1. Blending feeders to take full advantage of the gentle opening action of the feeder aprons.

2. The Vertical Opener which combines the cleaning and blooming action of swirling air currents with the effective trash removal obtained through the medium of beaters and grid bars. The lighter impurities settle in an air space outside the grids.

3. The #12 Lattice Opener, preferably in tandem, with its horizontal beater which effects a combing action to the fringe of stock so that pepper leaf, seed particles, and other light bits of foreign matter are removed.

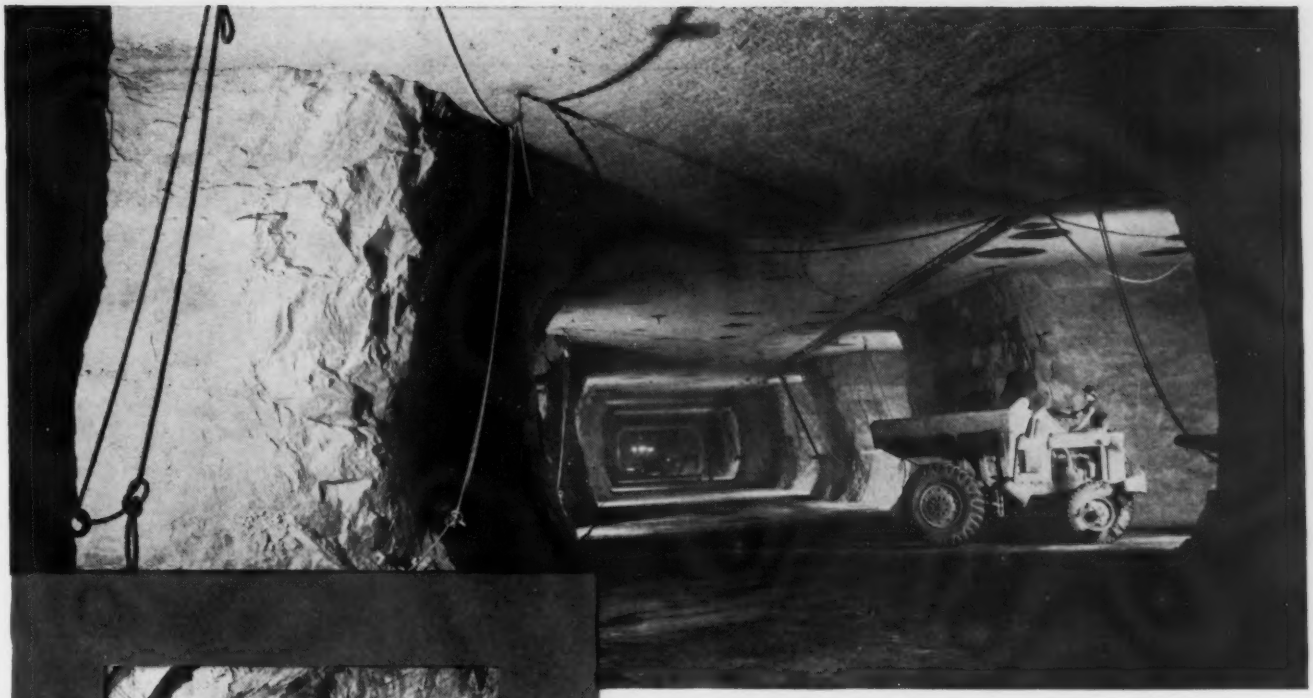
4. The #11 Dust and Waste Extractor provides strong air currents to carry away the lightest types of trash, dust, and pepperleaf.

We earnestly recommend the use of our Recirculating Air Filters in the Opening Line. The recirculation of air makes possible the closer and more economical control of the conditions of temperature and humidity in the room. The returned air is clean and free of dust particles.

If you are troubled with dirt or specks in your yarn, a survey by our engineers may develop means to improve your product.

Saco-Lowell Shops • SHOPS AT BIDDEFORD, MAINE

BOSTON, MASSACHUSETTS • BRANCHES: CHARLOTTE, GREENVILLE, ATLANTA



Photographs show vast size of limestone mine operation. Shovels are 1½ yard, electrically powered; trucks are Diesels.

World's deepest

LIMESTONE MINE

TO AUGMENT raw materials supplies, Columbia mined 2,200 feet for limestone—almost beneath its plant at Barberton, Ohio.

The operation is notable in a number of other ways. Modern equipment of great size—capable of moving 300 tons of stone per hour—was assembled underground. The stone is screened and crushed; then brought to the surface by a semi-automatic hoist which attains a speed of 2,000 feet per minute and automatically brakes and dumps at the top.

This is another of numerous developments pioneered by Columbia for improved production and service to industry . . . Pittsburgh Plate Glass Company, Columbia Chemical Division, Pittsburgh 13, Pa. Manufacturers of Soda Ash, Caustic Soda, Liquid Chlorine, Sodium Bicarbonate and other alkalies and related essential industrial chemicals.

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PLANT LOCATION

(a) Survey on the ground to determine location, man-power, transportation, markets, raw material, power, fuel and water supplies.
(b) Determine size of initial plant, and plan its expansion.
(c) Consultation on types of yarn, denier, packaging, etc.
(d) Estimates for land and building, equipment, and working capital.
(e) Estimate production cost and overhead, sales and profit.

ERECTION OF BUILDINGS AND MACHINERY

(a) Furnish complete plans for buildings and machinery.
(b) Supply all production machinery and auxiliary equipment.
(c) Send KOHORN engineers to erect plant, install machinery and building equipment.

STARTING PRODUCTION

(a) KOHORN Chemists and Engineers, start the plant and bring it into full production.
(b) KOHORN experts help train local labor.
(c) Modern chemical and mechanical processes, installed by KOHORN, hold consumption of raw material and labor to a minimum.
(d) KOHORN engineers co-operate with your sales department in introducing product to the market.

PLANT EXPANSION

(a) KOHORN'S interest in your plant, after it is turned over to you, continues. Consultation always available.
(b) Our latest patents are put at your disposal when plant expansion is contemplated.

Photo Courtesy of Van Vlaanderen Machine Company, Paterson, N. J.

Condor RUBBER-COVERED ROLLS

Shown above is a typical installation of Condor Rubber-Covered Batcher Rolls on new Van Vlaanderen tensionless jigs in one of the textile industry's largest dye houses. To match their best engineering improvements, many manufacturers rely on Manhattan's 50 years of experience for the most uniform and longest lasting rubber-covered rolls.

Some Manhattan installations of batcher rolls, for example, have served over a quarter century without ever being removed from the machine. The same quality goes into all Condor Rubber-Covered Rolls whether specifically designed for batcher, scutcher, slasher, padder, mercerizing or other equipment.

Manhattan's complete line of rubber products for the Textile Industry is consistently dependable—outstanding in quality. Make MANHATTAN your choice also for hose, belts, tank linings.

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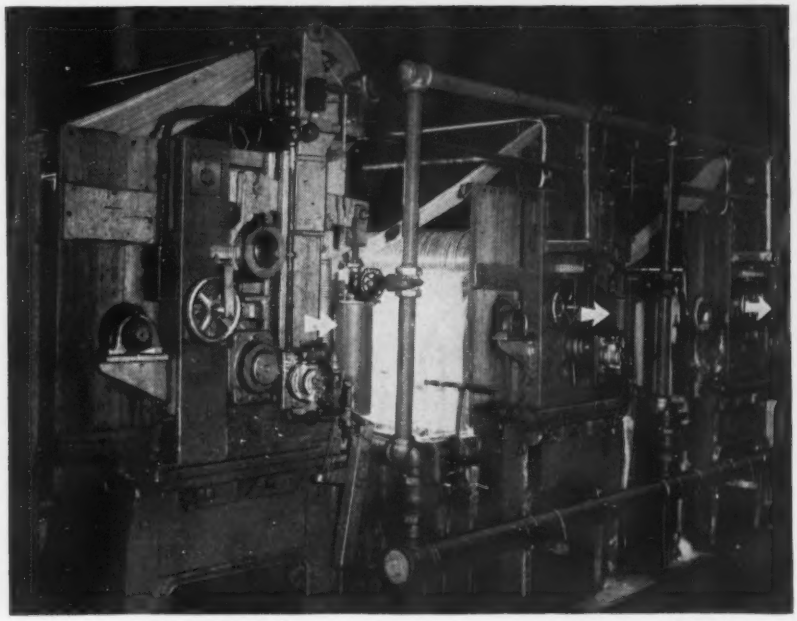
RAYBESTOS R M MANHATTAN

RAYBESTOS-MANHATTAN INC.

Keep Ahead with Manhattan

MANHATTAN RUBBER DIVISION **PASSAIC, NEW JERSEY**

THE MOTOR PUMP HAS THAT EXTRA- MARGIN OF RELIABILITY



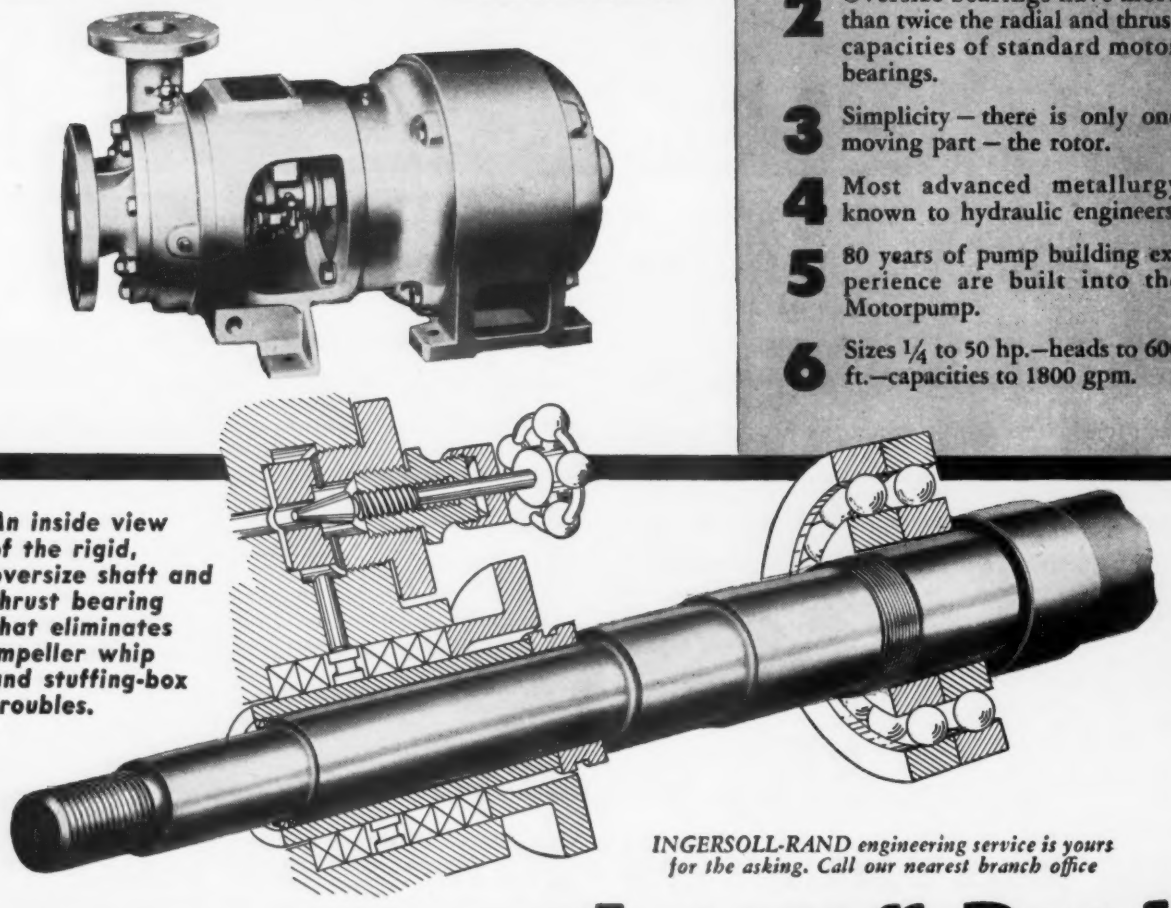
Photo—Courtesy Riggs & Lombard

Continuous Washer

Here is a pump built for heavy-duty work where minimum attention and continuous service are "house rules."

CONSIDER THESE MOTORPUMP FEATURES:

1. Single, oversize shaft for both motor and pump designed for a maximum deflection of only .001" at the end. This prevents impeller whip and reduces stuffing-box troubles to the minimum.
2. Oversize bearings have more than twice the radial and thrust capacities of standard motor bearings.
3. Simplicity – there is only one moving part – the rotor.
4. Most advanced metallurgy known to hydraulic engineers.
5. 80 years of pump building experience are built into the Motorpump.
6. Sizes ¼ to 50 hp.—heads to 600 ft.—capacities to 1800 gpm.



An inside view of the rigid, oversize shaft and thrust bearing that eliminates impeller whip and stuffing-box troubles.

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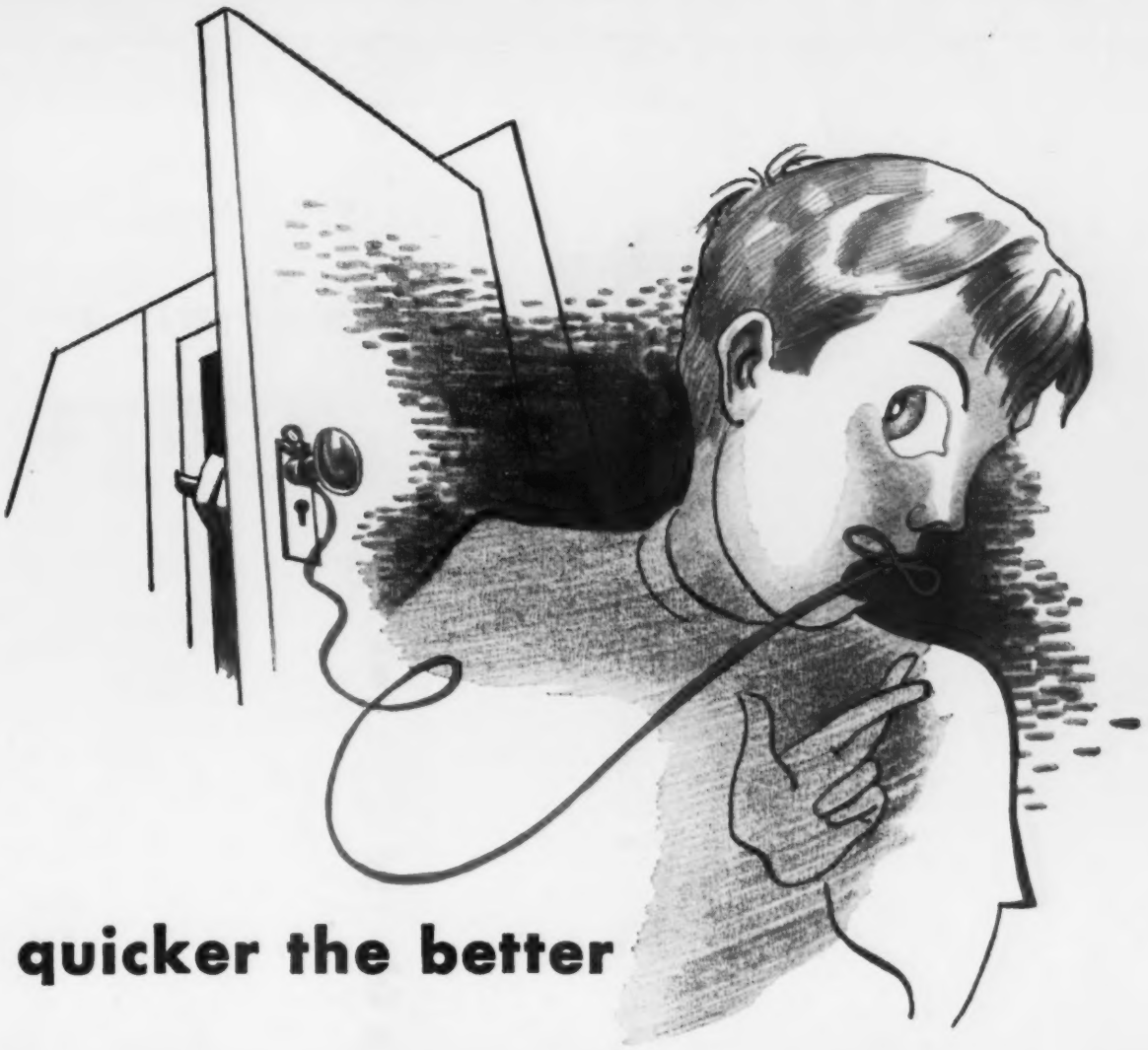

the quicker the better

THE QUICKER YOU PROCESS—THE BETTER YOUR WOOLENS

NACCONOL* NR

AMERICA'S LEADING SYNTHETIC DETERGENT

SCOURS FASTER

NATIONAL QUALITY

COSTS LESS THAN SOAP

DOES MORE THAN SOAP

Additional production now available. Inquiries invited.

*Reg. U.S. Pat. Off.

National Aniline DIVISION • ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR ST., NEW YORK 6, N.Y. • BOSTON • PROVIDENCE • PHILADELPHIA • CHICAGO • SAN FRANCISCO • PORTLAND, ORE. GREENSBORO • CHARLOTTE • ATLANTA • NEW ORLEANS • CHATTANOOGA • TORONTO

TERGITOL *wetting agents are* SPECIFIC

If you use water or an aqueous solution for one of the following operations, a *specific* TERGITOL wetting agent can save you money and processing time:

PENETRATING . . . porous materials such as textile fibers, paper, and leather.

WETTING . . . pigments, dyestuffs, powders, clay, cement, dust, and other dry materials.

SURFACE SPREADING on glass, metal, wood, plastic, or foliage surfaces — which ordinarily resist wetting.

EMULSIFYING . . . oils, resins, and chlorinated or water-insoluble solvents.

DE-EMULSIFYING . . . many water-oil and solvent-water emulsions.

TERGITOL 7 . . . for dilute aqueous solutions containing less than 1 per cent dissolved solids.

TERGITOL P-28 . . . for water solutions containing 2 to 5 per cent inorganic salts or 1 to 2 per cent alkalies.

TERGITOL 4 . . . for solutions containing from 1 to 10 per cent acids or salts, or 2 to 5 per cent alkalies.

TERGITOL 08 . . . for solutions containing 10 to 20 per cent acids or alkalies.

TERGITOL EH . . . for solutions containing 20 to 30 per cent dissolved inorganic acid, base, or salt.

CARBIDE and CARBON CHEMICALS CORPORATION

Unit of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York 17, N. Y.

Offices in Principal Cities

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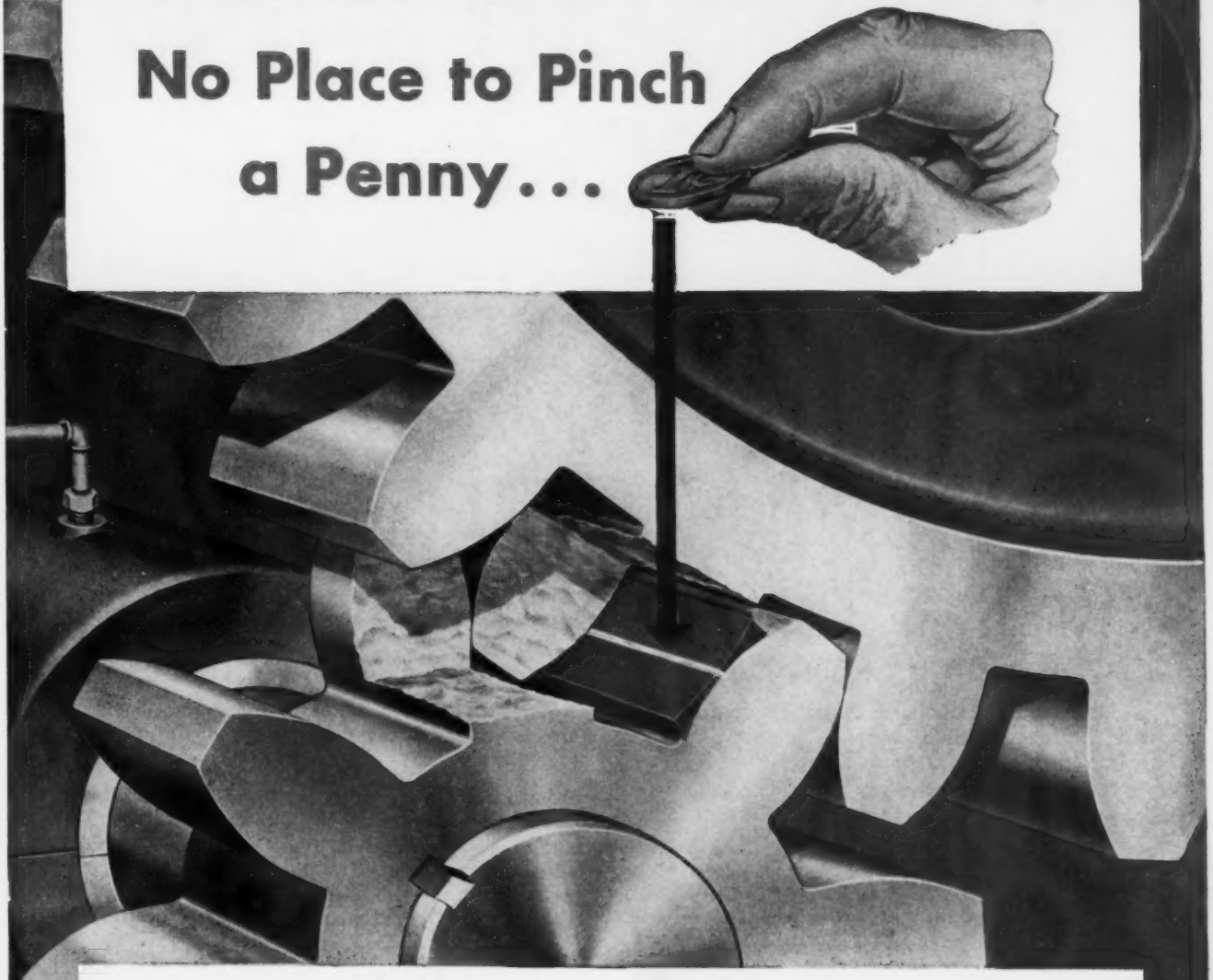
Carbide and Carbon Chemicals, Limited, Toronto

TERGITOL is a registered trade-mark of C & CC.

The five TERGITOL wetting agents are powerful, fast-acting surface-tension depressants. These easy-to-use liquids are available in commercial quantities. They are inexpensive—a little goes a long way. For help in choosing the most suitable TERGITOL wetting agent for your application call or write our nearest office. When writing, please address Dept. P-3

No Place to Pinch a Penny...



The right oil here saves far more than it costs!

You're looking at a danger spot in industry —the spot where two gear teeth come together. That white line shows the contact area where pressures build up, sometimes to thousands of pounds per square inch.

This is no place to pinch pennies on lubrication. The right oil or grease here resists high pressures, protects gears against metal-to-metal contact and failure. The cost is negligible, compared to the many benefits obtained.

Socony-Vacuum brings 82 years' lubrication experience into your plant to help solve your gear problems.

Our Correct Lubrication program assures maximum protection for every type of gear—and all other vital machine parts. Get this program for less "toothaches" and headaches on production.

Socony-Vacuum

Correct Lubrication

SOCONY-VACUUM

GARGOYLE Lubricants

SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION

PLAN NOW TO ATTEND

The International Exposition of Textile Machinery Equipment & Supplies

MAY 3, 4, 5, 6 & 7, 1948

71st Regiment Armory 34th St. & Park Ave.—New York, N. Y.

Two more months and New York will have its long awaited textile equipment show—the show you've been reading about for a year.

To make absolutely sure that key men in the key mills of the country receive invitations to attend this all important show—

And at the same time to round out our efforts to have the right men of the industry see the exhibits which are being prepared in their interests—

We have engaged the services of the direct mail department of the McGraw-Hill Publishing Co., (publishers of Textile World) to send invitations and admission tickets to the top personnel of all the representative mills in America.

Our advertising campaign has created a world wide interest in the show. Not only mill men in America—but mill executives in all parts of the world have timed New York trips to enable them to take in this New York show.

So, if you have not already done so, make your own plans *now* to attend—to study the exhibits—to attend the forums which will be held in conjunction with the show and which are a MUST for mill executives, superintendents, overseers, and others interested in all phases of textile manufacturing.

Remember—this first New York post-war textile equipment exposition is for textile men only—*you* are definitely invited.

If you have not received tickets—write us today for as many as you need—we'll be glad to send them to you immediately—with our compliments.

A Few Exhibit Spaces Still Available

If you're anxious to cash in on the interest of mill men who will come from all over the world to see what manufacturers have to offer that will help them solve textile mill problems, your products should be exhibited at this show—a few exhibit spaces are still available—call or wire.

INTERNATIONAL EXPOSITION OF TEXTILE MACHINERY EQUIPMENT & SUPPLIES

Executive Offices—36 West 47th Street—New York 19, N. Y.

Telephone WAtkins 9-8068-9-70 **Cable Address "Intexfash" New York**

SANDOZ PRESENTS *The color achievement of the month*

Cover Girl Colors BY BARBOUR

Bright and *saucy* are the adjectives you'd use to describe the colors selected by Barbour Mills for these two fleece coats tailored by "Kitten's Ear" and modelled by two teen-age cover girls at famous Wayside Inn.

For these coats Barbour wants colors that will sell . . . will hold up in service . . . and can be handled efficiently and economically in the dyeing process. That is why Barbour—like so many other textile leaders—insists upon the quality that Sandoz represents.

Among the Sandoz color achievements is:

ALIZARINE LIGHT BLUE 5GL (Pat.) a new and outstanding clear, greenish acid blue with similar properties to those of its predecessor, Alizarine Light Blue 4GL—for years the standard for fastness-to-light and level dyeing in acid blues. It provides unsurpassed fastness in peacock, teal and turquoise shades and—with Xylene Light Yellow 2G—faster greens.

For acid, chrome or direct dyes . . . or auxiliary chemicals . . . for both natural and synthetic fibres . . . be guided by the successful "color achievements" you see in these Sandoz advertisements.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N. Y.

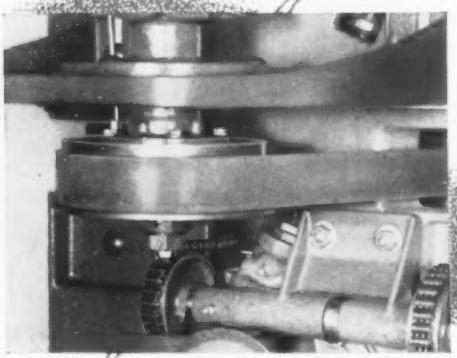
Application laboratories and stocks at Boston, Philadelphia, Charlotte, Los Angeles, Toronto. • Other branches at Providence, Paterson, Chicago.

SANDOZ *thinks ahead with textiles*

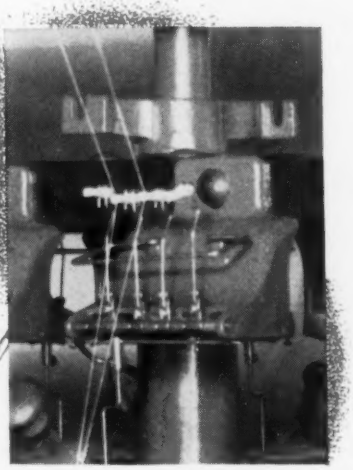
SANDOZ

Looks Well ON ANY SHAPE ...tall, short or stout

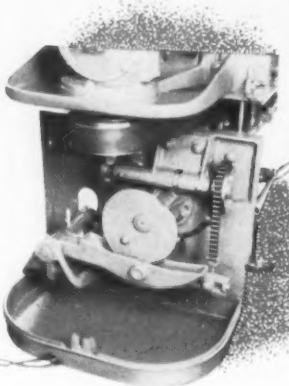
Atwood Model 10 Ring Twister gives you a choice of three package shapes — tapered top, double-tapered or straight wind. On *any* shape, twist is uniform, winding smooth, yarn clean — because of these quality *controls*.



One endless, lapless Atwood drive belt serves all 100 spindles, delivering equal power to each spindle. Constant spindle speed means accurate twist from spindle to spindle.



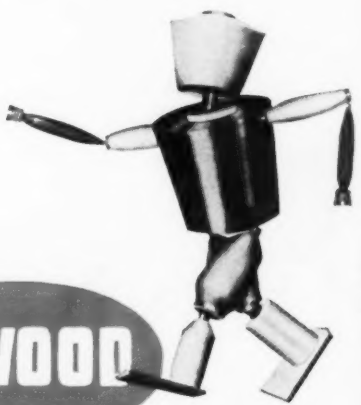
Automatic stop motion stops *individual* spindle and feed roll simultaneously, so knots can be tied in single ends. This eliminates roller laps and single ends in the package.



The accelerated cam used in the taper top builder motion results in each layer of yarn being constantly covered, so that there is no soilage and the finished package is smooth and clean.

The Ring Twister with Automatic Stop Motion for Every End and Ply

Write Us for Latest Bulletin



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ATWOOD DIVISION

ATWOOD

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Manchester, England • Paris, France • Basle, Switzerland • Agents in every principal textile center in the world.

Whatever your fabrics....

LIQUON

WATER TREATMENT *will help make them better*

The large amount of process water required in the manufacture of textiles of all kinds . . . natural or synthetic . . . makes the quality of the water an important factor in assuring best results.

The dissolved iron that causes stains . . . the hardness that interferes with scouring and dyeing . . . the turbidity and color that interfere with proper fabric finish of the yarn . . . all these water impurities must be eliminated, or reduced to maximum allowable limits.

For more than 30 years, LIQUON engineers and chemists have been successfully solving textile plant problems like these and designing equipment to condition water effectively and economically. The results of their long, specialized experience are at your service . . . For full information . . . without obligation . . . send the coupon below.

LC-144

LIQUID CONDITIONING CORPORATION

114 East Price Street, Linden, N. J.

Engineering Service Representatives in Principal Cities

LIQUID CONDITIONING CORP.
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Please send me information on water treatment for textile plants, without obligation to me.

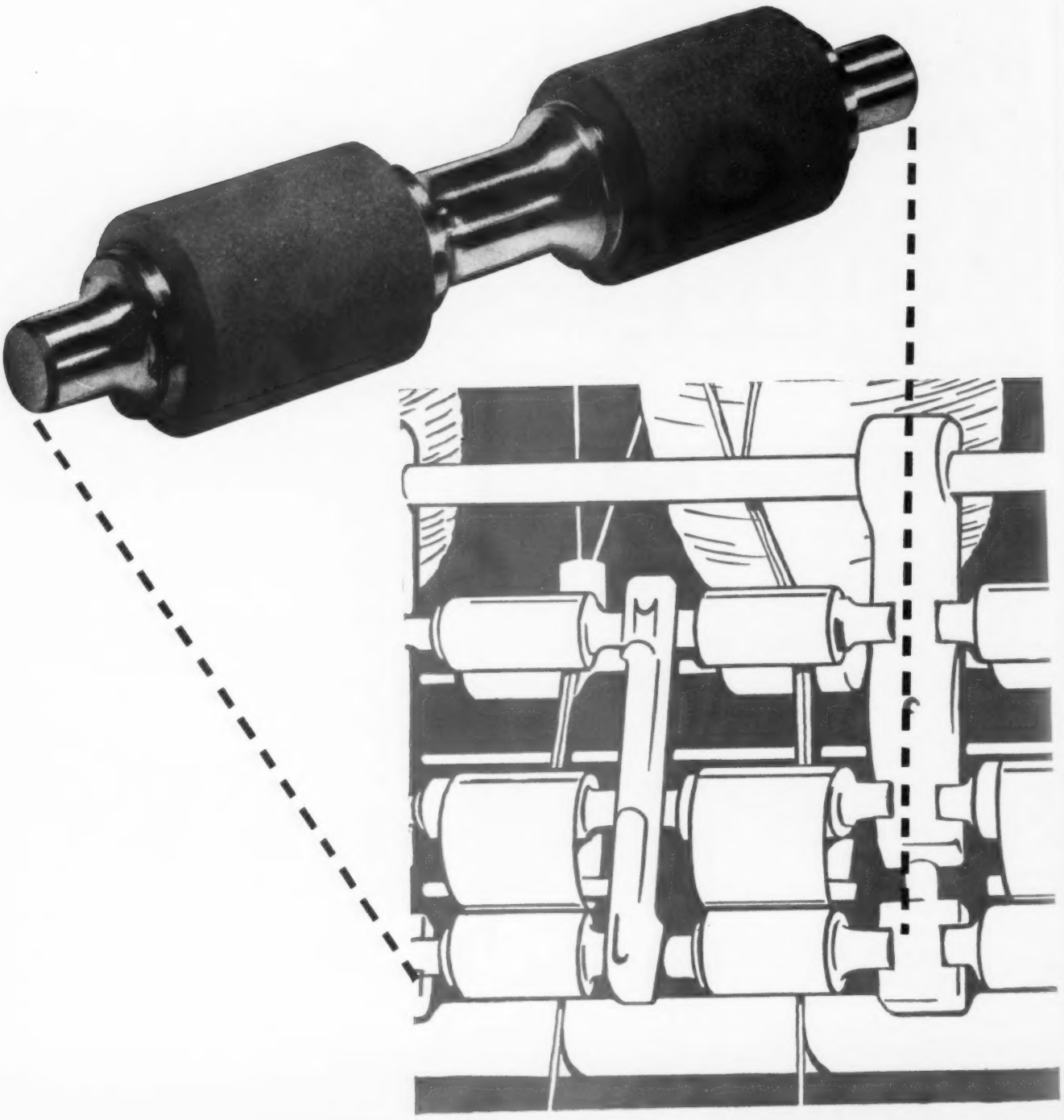
NAME_____

POSITION_____

COMPANY_____

ADDRESS_____ TW-3

ACCOTEX COTS draft



ARMSTRONG'S ACCOTEX COTS

better because they resist slicking

YOU can count on better fiber control when you run on Armstrong's NC-727 Accotex Cots. That's because the synthetic rubber in this Accotex Cot is scientifically compounded with cork. The high friction cork helps grip the fiber firmly and evenly. Slicking is retarded. This long-lasting grip gives you more uniform drafting and higher quality yarn.

Besides drafting better, Accotex Cots offer all these important advantages:

LONG SERVICE—Accotex NC-727 Cots are tough. And they can be rebuffed at least five or six times.

REDUCED EYEBROWING—The resistance to slicking minimizes eyebrowing.

REDUCED LAPPING—Accotex NC-727 Cots have little affinity for textile fibers and are non-sweating even in humid weather.

GOOD START-UP—Accotex NC-727 Cots are non-thermoplastic and resist flattening.

SOLVENT RESISTANCE—Accotex NC-727 Cots are not affected by oil, water, dyes, or commonly used textile solvents.

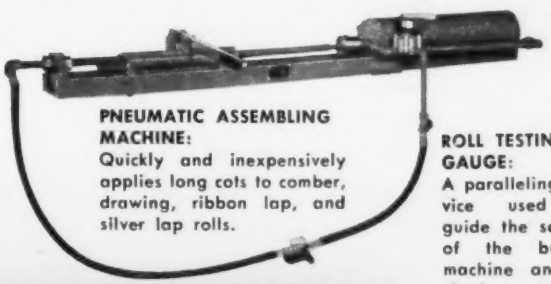
SEAMLESS CONSTRUCTION—Accotex NC-727 Cots have no seams, no structural weaknesses to cause failure in service.

QUICK ASSEMBLY—All Accotex Cots are ready glued for easier, quicker assembly.

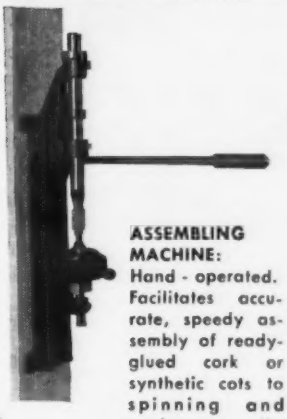
Put these superior cots on a test frame today. See why Armstrong's Accotex Cots now serve more spindles than any other roll covering. They are made in various compounds, with and without cork. Your Armstrong representative will help you choose the best type of Accotex Cot for your particular service. Call him today. Or write to Armstrong Cork Company, Textile Products Department, 8303 Arch St., Lancaster, Pennsylvania.

ROLL COVERING SERVICE THAT'S COMPLETE

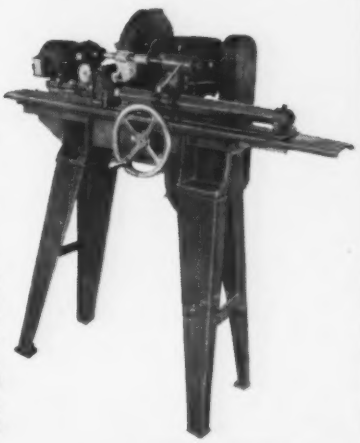
You can get everything you need for complete roll covering service from your Armstrong representative. He can supply not only all three modern types of covers but also the roll shop equipment required to apply and service them.



PNEUMATIC ASSEMBLING MACHINE: Quickly and inexpensively applies long cots to comber, drawing, ribbon lap, and silver lap rolls.

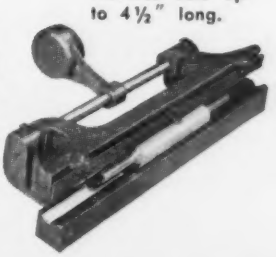


ASSEMBLING MACHINE: Hand-operated. Facilitates accurate, speedy assembly of ready-glued cork or synthetic cots to spinning and card room rolls. Handles cots up to 4½" long.



BUFFING MACHINE: Precision-buffs all modern types of cots. Adjustable for all lengths and diameters of rolls ordinarily used.

ROLL TESTING GAUGE: A paralleling device used to guide the setting of the buffing machine and to check trueness of rolls after they have been rebuffed.



CORK COTS
ACCOTEX APRONS
ROLL SHOP EQUIPMENT

"Which Squirrel-Cage Motor Shall I Buy?"

Open-Type? This general-purpose squirrel-cage motor meets about 9 out of every 10 application requirements; so chances are it's the design you'll select. Allis-Chalmers builds generously proportioned, rugged *open-type* squirrel-cage motors in sizes from 1 hp to the largest practical requirement.

Splash-Proof? Where operating conditions are conducive to entrance of particles or liquids into ordinary motors from either top or sides, Allis-Chalmers *splash-proof* squirrel-cage motors may be your best buy. They're designed to *exclude* top or side directed particles and liquids. Sizes 1 hp to the largest.

Vertical? or Flange-Type? *Either* can solve a space problem. *Vertical* motors (sizes 1 hp to largest) for vertical drives. *Flange-mounted* for side or angle drives. In both types bearings and closures are designed to prevent grease escapement. Mounting flange for attaching to your base can be provided.

Totally-Enclosed? Explosion-Proof? Completely weather-proof and fan-cooled, these motors are built to beat abrasive dust, dirt and corrosive fumes, or moisture conditions that cause windings in ordinary motors to deteriorate. *Explosion-proof type* for oil refineries, paint, varnish or lacquer plants, etc.; Underwriters approved; reduce hazards in explosive or dust atmospheres. Either type built from 1 hp and up.

Are Motor Decisions More Important Today?

YOU BET THEY ARE! One *obvious* reason is the need for keeping costs down. Another is that in the rush to fill demand much equipment is being misapplied; making it harder to maintain profits not alone today, but tomorrow, the next day and the next year—as long as misapplication continues!

That's why it's important to take a good look at motors — their characteristics — your equipment — power source and surroundings — *before* you buy and apply! If you're in doubt, don't take chances — call a motor expert! ALLIS-CHALMERS, MILWAUKEE 1, WIS. A 2327

A CENTURY OF SERVICE to Industry THAT MADE America Great

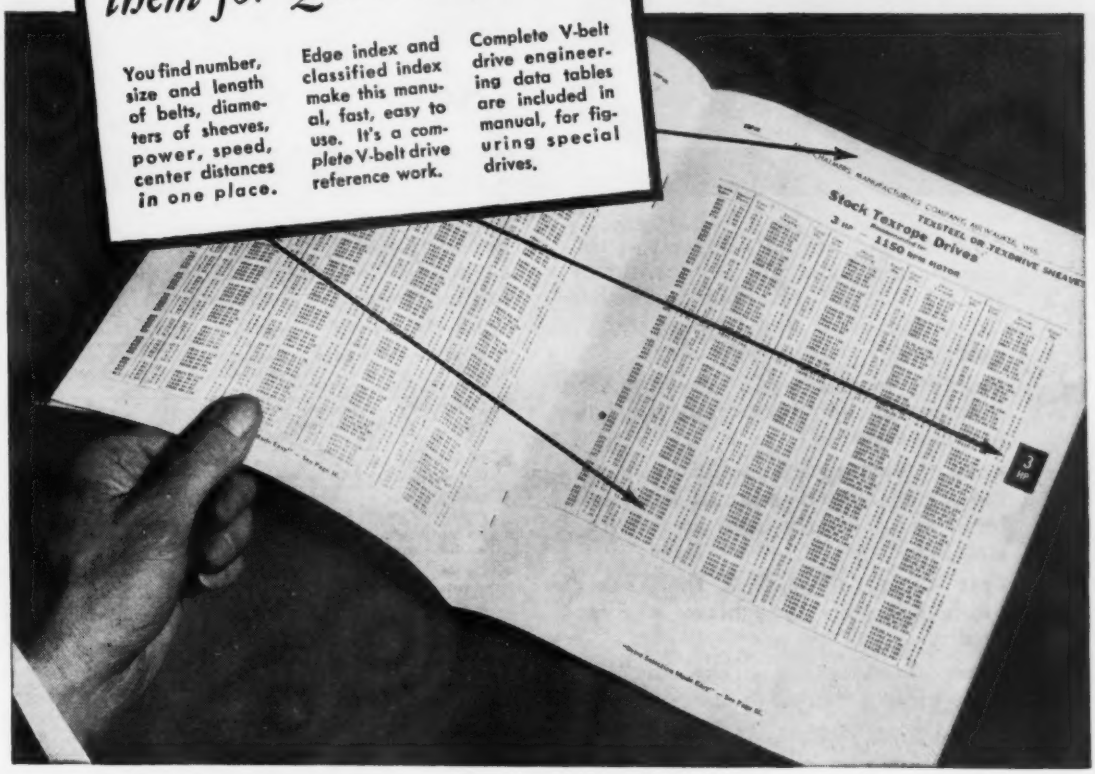
ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment-
Biggest of All in Range of Industrial Products

90% OF ALL V-BELT DRIVE PROBLEMS SOLVED ECONOMICALLY WITH TEXROPE

Pre-Engineered Drives

TEXROPE .. Greatest Name in V-Belt Drives


This New Manual Lists them for Quick Reference
You find number, size and length of belts, diameters of sheaves, power, speed, center distances in one place.
Edge index and classified index make this manual, fast, easy to use. It's a complete V-belt drive reference work.
Complete V-belt drive engineering data tables are included in manual, for figuring special drives.
Stock Texrope Drives

USING STOCK BELTS AND SHEAVES, Texrope engineers have selected the *best* drive for each requirement . . . the drive most economical in first cost and in maintenance.

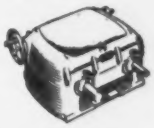
Only Allis-Chalmers offers you this complete Pre-Engineered drive manual. It is the product of 23 years of industrial V-belt drive experience, the finest engineering talent in the business.

Here is a book that will save you time and money in the purchase of V-belt drive equipment. Copies have been sent to many Texrope users and dealers. If you don't have a copy yet, write for Texbook No. 20P40. ALLIS-CHALMERS, MILWAUKEE 1, WIS. A 2335

"Super 7" V-BELTS
Five Types — Sizes to suit every power transmission job.

Texsteel, Texdrive, "Magic-Grip"
— sheaves in a full range of sizes, grooves.

"Vari-Pitch" SHEAVES
Exact variations in speed, stationery or motion control.



SPEED CHANGERS
Speed variations up to 375% at the turn of a crank.

ENGINEERING
Finest V-Belt engineering talent in the world—at your call.

TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.

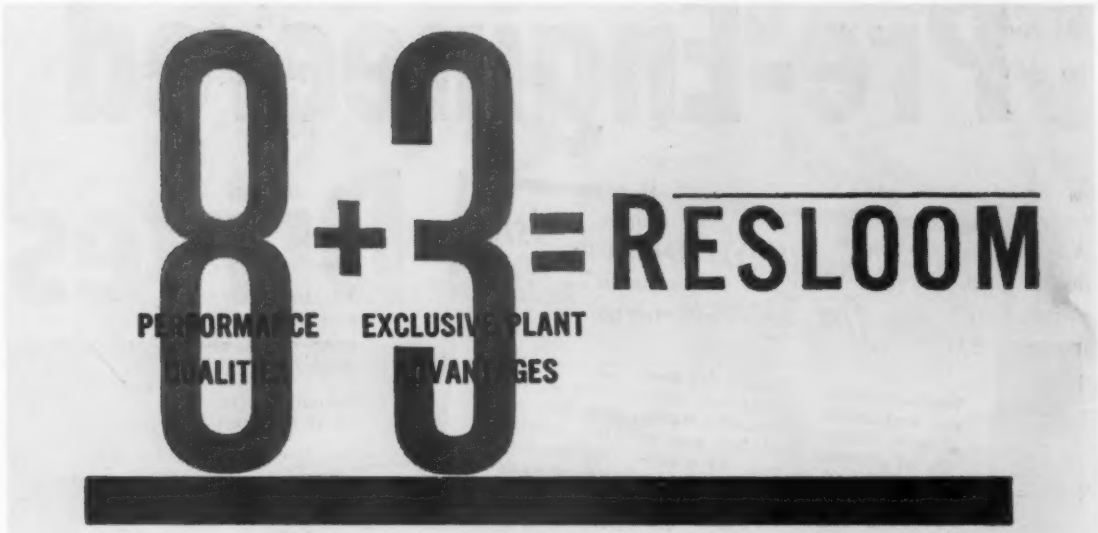
Texrope, Super-7, Texsteel, Texdrive, Magic-Grip and Vari-Pitch are Allis-Chalmers Trademarks

ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products

A CENTURY OF SERVICE to Industry THAT MADE America Great

FOR YOUR INFORMATION



Millmen and finishers as well as the manufacturer and ultimate consumer profit by the use of Resloom in finishes for cotton, wool and rayons. Unlike other materials, Resloom offers:

Stability in storage . . . Resloom can be stored at room temperatures for an indefinite period.

Ease of putting into solution . . . no boiling or icing is required with Resloom and solutions have outstanding stability.

Less Resloom required than other finish materials to achieve a given quality.

These three exclusive Resloom features mean production speed-up and a reduction of application costs. These economical advantages are in addition to the following eight sales assets Resloom gives your fabric:

1. **Wrinkle Resistance** . . . unexcelled . . . angle of recovery 100% or more as measured on Monsanto Wrinkle Recovery Meter.
2. **Durability** . . . Resloom doesn't wear away, wash away, dry clean away . . . as durable as the fiber itself.
3. **Shrinkage Control** . . . Often as low as 1% when tested by CCC-T-191a standards.
4. **Stability** . . . a unique fabric builder, upgrades your constructions.
5. **Versatility** . . . effective on all fibers, unequalled on blends.
6. **Compatibility** . . . can be used with other finishing agents.
7. **Strength** . . . no deterioration of fibers.
8. **"Hand"** . . . crisp or soft, any "hand" to meet your preference . . . a range of Reslooms makes this possible.

For more Resloom data check C1 on the coupon opposite. *C1*

PRICE REDUCTION FOR MONSANTO'S SYNTHETIC DETERGENT

Increased use of Sted, Monsanto's universal textile detergent and scouring agent has made possible a further reduction in prices.

This reduction warrants an immediate comparison of Sted with any soap or detergent for use in scouring, cleaning or degreasing.

Effective on all types of fibers, Sted has demonstrated its cleansing power in raw wool scouring, kier boiling, desizing, backwashing, hosiery scouring and other washing operations.

Monsanto's all-purpose detergent is stable under all conditions—acid, alkali, hot, cold, hard or soft water.

On a pound for pound basis, Sted has proved to be more effective than other detergents for washing prints, scouring whites, degreasing wool and general cleaning.

For complete technical information on Sted, check C2 on the coupon. *C2*

STED'S LOW PRICES

The following new prices for Sted apply on 100 lb. bags LCL:

F.O.B. Anniston, Ala.	12½c per lb.
F.O.B. Camden, N. J.	13¾c per lb.
F.O.B. Everett, Mass.	14c per lb.

Carload prices from each of these shipping points will be ½¢ a lb. less.

News about Monsanto Textile Chemicals... March 1948

STYMER SAVES ONE HOUR IN DESIZING OPERATION

Mill experience has disclosed that one important advantage of Stymer, Monsanto's new synthetic sizing agent for slashing acetate warps, is the ease with which it is removed from the woven fabric before dyeing and finishing.

A typical report: "Stymer is washed out in 30 minutes; other sizing materials require 1½ hours or more." Stymer is completely removed by a mild scour. No enzymes or strong scouring agents are necessary.

Further proven advantages for Stymer are:

1. Exceptional strength, uniformity and flexibility of the sized warp.
2. Efficiency in slashing—Does not stick to dry cans, separates easily at the lease rods and does not gel in the pipes or size box.
3. Improvements in weaving—reduces shedding, eliminates static, maintains yarn twist and produces more uniform fabric.

Reg. U. S. Pat. Off. Resloom, Stymer, Merlon

For more Stymer information, encircle C4 in the coupon. *C4*

TYPICAL STYMER MILL CASE HISTORY:

WARP DATA	
Fiber	Acetate
Denier	75
Filament	20
Twist	3
Slay	104
Ends	4108
Picks	76
Quality	Bright

SIZE MIX	
Strength	5%
Viscosity	75 cps.
Temperature	150°F.
Formula	42 lbs. Sodium Stymer 1.5 lbs. Defoamer

Remarks: Sodium Stymer added to hot water with vigorous agitation — boiled for 15 minutes. Clear, uniform solution. No difficulty in preparation.

SLASHING DATA	
Type	Johnson 7 can
Speed	30 yds. per min.

SLASHING DATA (Con't.)	
Pickup	app. 70%
Roll Covering	Rubber
Can Temperatures	No. 1. 160°F No. 2. 180°F No. 3. 200°F No. 4. 210°F No. 5. 210°F No. 6. 200°F No. 7. 150°F
Can Coverings	None
Stretch	3%
Appearance	Uniform well sized yarn
Solids Deposited	app. 3.5%

Remarks: Slashing performance was excellent—warps characterized by flexibility and smoothness of handle.

WEAVING DATA	
Speed	150 ppm.
Shedding	None
Weaving Efficiency	95%

Remarks: *Stymer sized warps wove most satisfactorily. Weaving results superior to standards previously attained for this construction.*

MERLONS, MONSANTO'S RESIN DISPERSIONS AVAILABLE FOR IMPROVEMENT OF TEXTILES

Nine Merlons, members of a family of resin dispersed resins, now make possible a wide range of durable finishes for all textile fibers and fabrics.

Varying degrees of softness, fullness and flexibility are obtained by selection or blending of the proper Merlons.

Specific fabric improvements imparted by the Merlons include:

1. Increased wear for work clothes.
2. Luster to sheetings and shirtings.
3. Fullness and crispness to dress goods.
4. Washability and stiffness to curtain materials.

These clear, colorless and odorless resins also have been used successfully as binding agents for pigments, backfilling and fiber bonding.

They are applied from a dilute aqueous bath and require no curing or other after treatment. No special equipment is necessary for application. Once applied, the resin is fixed by merely driving off the moisture by regular drying.

The Merlons are non-irritating, have no affinity for chlorine and are stable over a fairly wide pH range.

For complete details on the Merlons, use the coupon below, marking C3. We can be more helpful if you will state your special interest and type of material. *C3*

MONSANTO
CHEMICALS — PLASTICS

SERVING INDUSTRY...WHICH SERVES MANKIND

MONSANTO CHEMICAL COMPANY, TEXTILE CHEMICALS DEPT.
Desk TWT3, 140 Federal Street, Boston 10, Mass.

Please send me the following material:

C1 *C2* *C3* *C4*

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

Unit Responsibility

KEY TO MORE

Here's proof of the value of unit responsibility! This modern weave room produces the highest quality product . . . most efficiently. Westinghouse planned engineering provides individual drives and controls, uniform illumination, and Precipitron, the electronic air cleaner that provides clean, pure air.

"FROM OPENING TO FINISHING... ELECTRICAL AND POWER EQUIPMENT DESIGNED FOR EACH JOB"

The economical application of Westinghouse apparatus and electric power to textile mills has given the industry a new conception of speed, economy . . . *and* an improved product.

Whether it's a single motor drive, a complete power system, an individual lamp, or an entire lighting program . . . you need only contact one organization for your complete electrical requirements. From the start, Westinghouse has maintained a complete, separate Textile Department, staffed by competent engineers. These men are on the job full time producing better power equipment, and more efficient methods of applying, distributing, controlling and utilizing electric power for textile mills.

All this knowledge is yours for the asking . . . at Westinghouse. You'll get a speedy, accurate and simple solution to your textile problem.

Call your nearest Westinghouse office or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-94755

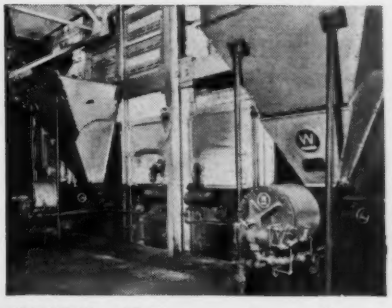
PRODUCTIVE POWER

"WESTINGHOUSE-EQUIPPED THROUGHOUT" MEANS SIMPLIFIED ORDERING, QUICKER INSTALLATION, MORE EFFICIENT OPERATION

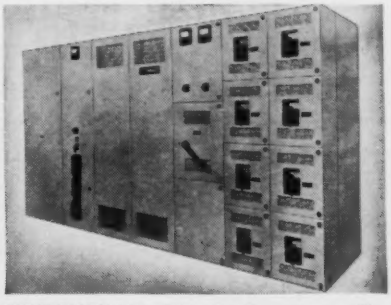
Putting power to work *productively* can be a major problem—or a simple one. When items must be selected, ordered and received from many sources, it means many chances for costly errors and delays . . . divided responsibility—or none at all—for performance of installed equipment.

Westinghouse offers the way to simplify the job. From equipment for generation of electrical or steam power, to the most specialized types of drives and control for its utilization, Westinghouse provides a single source of supply . . . one broad pair of shoulders competent to take responsibility for performance of all parts of the job.

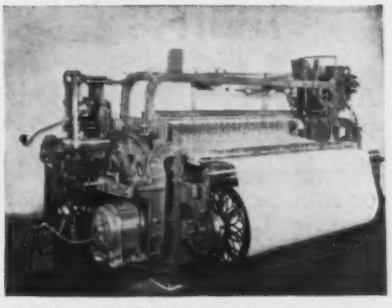
Here are a few of the places where Westinghouse unit responsibility prevents headaches . . . saves money . . . assures *more productive* power:



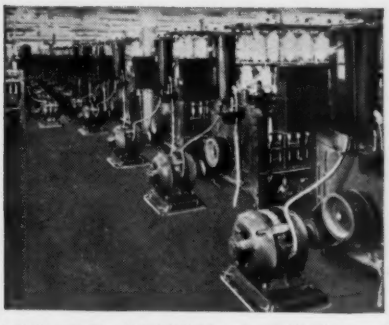
STOKERS—Ability to burn cheaper grades of fuel, and to eliminate smoke nuisance are two outstanding advantages of Westinghouse "Link-Grate" Stokers. These stokers fire the boilers supplying power and process steam in a New York textile mill.



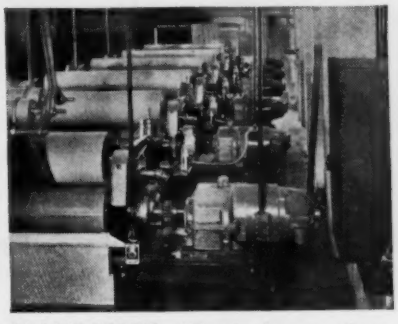
SWITCHGEAR—Westinghouse supplies a wide range of "Unitized" metal-clad switchgear that permits quick, economical installation. Unit shown contains a 750-kva air-cooled transformer, high-voltage metal-clad air breaker, and draw-out, low-voltage air circuit breakers.



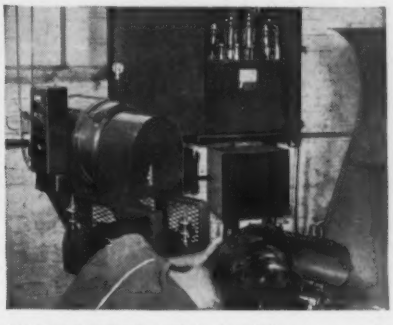
LOOM MOTORS—Westinghouse Loom Motors give maximum production with a minimum of power. Shown is a "weave room tested", specially-designed Westinghouse 1-1/2 hp loom motor driving a modern woolen and worsted loom.



LINT-FREE MOTORS—Installation of spinning frames, driven individually by Westinghouse Lint-Free Motors and controls. They're specially designed to provide the "cleanest running textile motor available".



GEARMOTORS—Westinghouse Gearmotors greatly facilitate the application of power for machines with slow-speed input shafts. Illustrated is a range drive, powered by Westinghouse Gearmotors.



MOT-O-TROL—This flexible electronic control solves any control problem requiring wide-range stepless speeds and close automatic regulation at all speeds and varying loads.

LIGHTING—Modern fluorescent lighting provides maximum "see-ability" in this textile mill. Westinghouse "planned lighting" is added proof of the value of single-source responsibility.

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

MORE PRODUCTIVE POWER FOR INDUSTRY

TEXTILE MACHINERY and

PUBLISHED BI-MONTHLY FOR TEXTILE MILL EXECUTIVES AND OPERATING PERSONNEL BY PROCTOR & SCHWARTZ, INC.

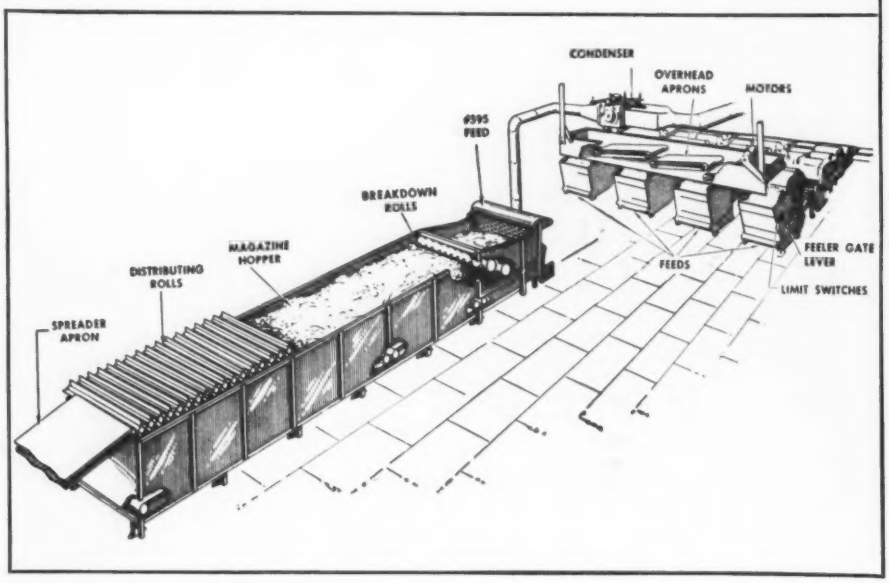
• MARCH • APRIL • 1948

New Proctor System Makes Stock Delivery Entirely Automatic

A system recently developed by Proctor engineers makes it possible to feed stock to card hoppers or storage bins entirely automatically. This system has been found suitable for plants producing woolen, worsted, carpet yarn, and asbestos. Not only does it assure uniform feeding of the stock you want, when you want it, and where you want it—but it does so with an absolute minimum of labor. It eliminates all the guesswork and expense involved in hand feeding.

Stock, which has been through a preliminary blending operation, is conveyed by an overhead system to a spot above either the card hoppers or storage bins.

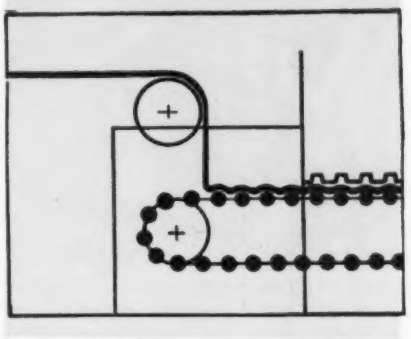
If it is feeding to hoppers, the system may be tied in with electrical controls on the feeds in such a way that when all the hoppers are filled the conveying system ceases to operate. It also shuts off the preliminary equipment to prevent any overrun of material. As soon as any hopper requires more stock, the system automatically begins operation. If the system is used to feed into storage bins, the electrical controls must be operated manually to govern feeding to the various bins, but otherwise remains entirely automatic. It may further be developed to include automatic re-blending in process if this is desired. For complete information on the possibilities of this system —write today.



SLACK DRYER DEVELOPED FOR PIECE GOODS

A recent development of Proctor engineers is this "slack" dryer for use in drying certain classes of specialty piece goods.

The principle of the system provides the name "slack". Goods that are to be dried are overfed to the dryer in a percentage determined by the finisher in such a way that it is possible to obtain maximum shrinkage. The overfed material is deposited onto the top conveyor of the dryer, which has three conveyors. These conveyors are made up of endless chains held together by covered cross girts set on equal centers.



Close up drawing illustrates principle of "slack" drying.

The material rests with some "slack" on these girts. It is carried back and forth by the three conveyors while heated air at high velocity is impinged against the fabric. By the time it has passed over the three conveyors, it is thoroughly dryed and ready for subsequent processing. In one typical installation the output averages 60 yards per minute.

Capacity must be determined by the individual cloth to be handled. To determine to what extent this "slack" dryer may be applicable to your requirements—write today —giving as much information as possible about your requirements.

DRYING EQUIPMENT *News*

BOOKLET ON CARE OF METALLIC WIRE ON CARDS AND GARNETTS

An informative 12-page booklet on "How to Give Metallic Wire Proper Care", now in its 6th edition, is available to card and garnett operators interested in longer life for their metallic wired machines.

The booklet contains explicit suggestions on regular care of metallic wire that are proving helpful to many mill men. Write today for your copy.

New England Re-clothing Shop in New Quarters

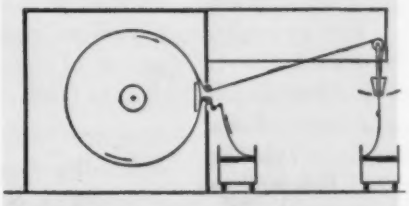
The Proctor re-clothing shop and sales office, formerly located at 791 Tremont Street, Boston, Mass., is now completely moved to its new and larger location at 275 Needham Street, Newton Upper Falls, Mass. The new location, in a solid concrete building, provides about 50% more floor space.

In addition to expanded space, it is the plan to add facilities in the new shop for re-clothing rolls for cotton type cards (both roller and flat) with metallic wire—thus making these cards more suitable for rayons and other synthetics.

Suction Cylinder Dryer Found Applicable for Silks and Rayons

The Proctor suction cylinder dryer, first developed for drying of tricot fabrics, has been found applicable for drying a variety of finishes, including silk and rayon prints.

As the name implies, the dryer operates on the principle of suction. Cloth is held against a covered cylinder, where the air flow is through the cloth to the center of the cylinder. It is capable of high production and at the same time assures top quality drying.



In one installation where this dryer is being used for silk and rayon print goods, it has completely broken a production bottleneck by reducing drying time from one hour to five minutes. In addition, drying has been cut from a three man to a one man operation.

The fact that the machine may be readily reversed has proven to be a decided advantage to the finisher. If an imperfection in the print of the goods is discovered as it is about to enter the dryer, the operator can simply press the reverse switch and the drum reverses, discharging the cloth without allowing the imperfectly printed section to pass through the machine. This prevents the imperfection from being permanently set in the finish.

Write for complete information on this highly versatile drying system.

COPIES OF TEXTILE DRYING TALK OFFERED

A talk on "Textile Drying", delivered by Myron T. Fleming, Proctor Sales and Development Engineer, before the American Association of Textile Chemists and Colorists, has created widespread interest. Many textile men have requested additional copies. If you would like a copy of Mr. Fleming's comprehensive talk—write today and one will be sent promptly.

Proctor & Schwartz, Inc. • 701 TABOR ROAD • Philadelphia 20, Pa.

— A *Finnell* SCRUBBER-VACUUM DOES ALL . . . at BIG Savings in Labor Costs!

Clean floors—so important to worker safety and morale—reflect good management. Large-area floors that are cleaned with a *Finnell Combination Scrubber-Vacuum* reflect good management for still another reason. They tell a story of big savings effected in labor costs. For example, the *Finnell Scrubber-Vacuum* illustrated above, with one or two operators, does a cleaning job better in half the time it takes a crew of six to eight using separate equipment for scrubbing and picking up. This *Self-Propelled Finnell* is a complete cleaning unit *all in one*—it applies the cleanser, scrubs, rinses if required, and picks up. Has a cleaning capacity up to 8,750 sq. ft. per hour!

Finnell offers several *Combination Scrubber-Vacuum Machines*, and also a full line of *Portable Floor-Maintenance Machines*. In fact, *Finnell* makes equipment for every type of floor care—wet scrubbing, dry scrubbing, dry cleaning, waxing, and polishing—and in sizes designed to fit specific needs. *Finnell* also makes a full line of *Cleansers* specially developed for the greater speed of mechanical scrubbing . . . and *Sealers*, *Waxes*, and *Accessories* for every need.

The nearby *Finnell Floor Specialist and Engineer* is readily available for free floor survey, demonstration, or consultation . . . and for training your maintenance operators in the proper use of *Finnell* equipment. Phone or write nearest *Finnell* branch or Finnell System, Inc., 1903 East St., Elkhart, Ind. Canadian Office: Ottawa, Ont.

Everything FINNELL for Floor Care

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

A recent installation of Model "L" Cards at Alma Mills, Gaffney, S. C.

WHITIN MACHINE WORKS ANNOUNCES ITS NEW MODEL "L" CARD

WHITINSVILLE Jan. 1947 (WMW) Whitin Machine Works today announced the new Model "L" Card. The development and building of this machine is said by officials of the company to represent an important step forward in cotton carding. The card has been thoroughly tested under mill conditions with entirely satisfactory results.

UP-TO-DATE *Report* ...on an up-to-date CARD!

Our new Model "L" Card was first announced to the industry a year ago through the textile trade journals. Since then the wide spread acceptance of, and demand for this model has proved its exceptional merit.

Literally hundreds and hundreds of these cards have been built and installed. Reports from mill after mill are always the same . . . favorable reports of better production, greater efficiency, increased cleanliness and quieter operation.

Numbered among the many new and beneficial features of the Model "L" Card are:

- Card frame, cylinder bearing pedestals, and arches have been strengthened to provide greater rigidity which is especially beneficial in maintaining card settings.
- Improved Top Flat Drive, Spiral Brush Drive, Coiler and Calender Drives are provided.
- Feed Roll weighting has been simplified, and the Feed Plate has been strengthened to resist pressure deflection.
- Oilite bearings have been provided in many locations to insure better lubrication.
- All gears have cut teeth for quieter operation.
- Surfaces and Contours have been restyled to facilitate cleaning.
- Adjustments can be made with greater ease and convenience.

These and many other features combine to make this model an up-to-date, smoothly operating, highly efficient card. Write today for our illustrated folder giving complete details and technical data.

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA.

H & B RUBBER

A Typical Installation

The Achievement

Here at the Kanmak Mills in Kulpmont, Pennsylvania, H & B Rubber Covering Machines are used to produce covered rubber yarn of accurately measured, fully controlled elongation and balance. This quality yarn is then used by Kanmak to make quality foundation garments; it's the quality that sells.

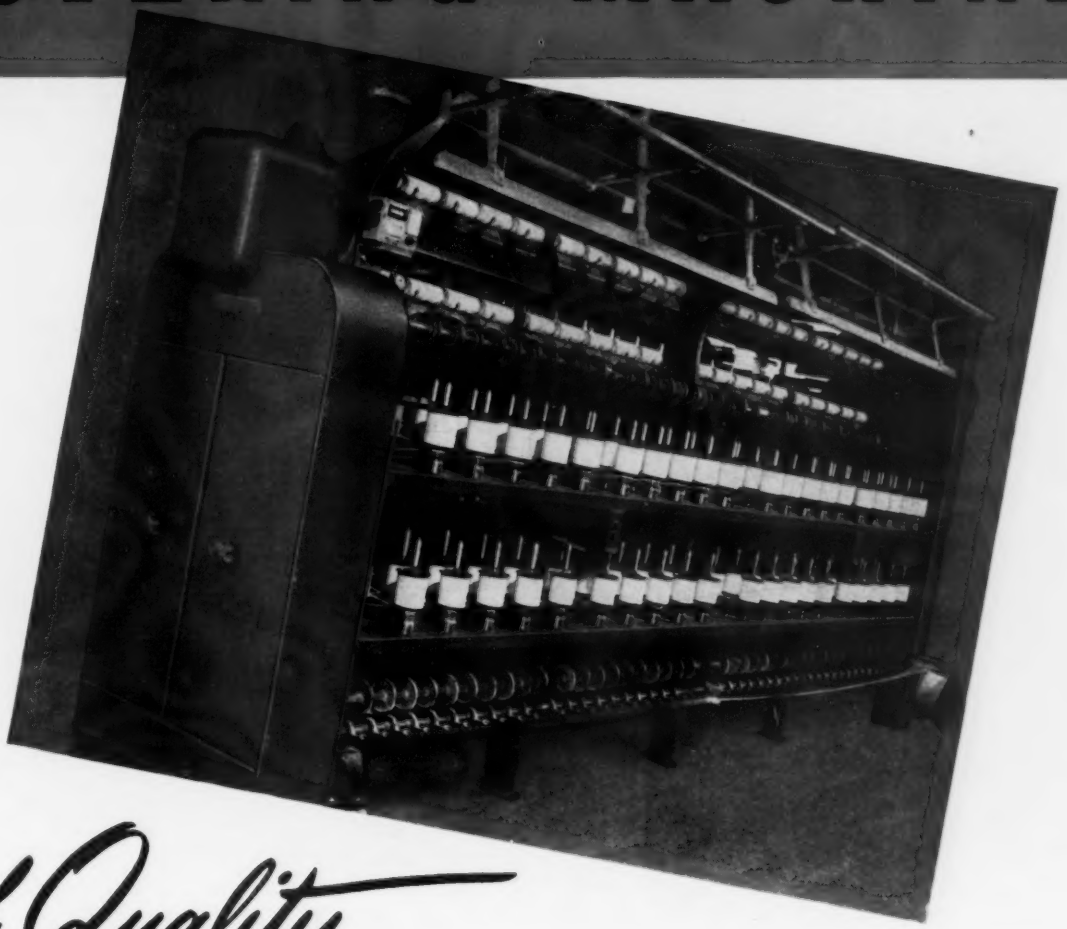
This emphasis on quality is typical of H & B textile machinery in general, and the prime reason for its growing popularity. Under the following close-up photograph of one of our Rubber Covering Machines at Kanmak is an imposing list of some of the features of this equipment, designed for the *achievement of quality.*

H & B AMERICAN

Builders of Modern

FACTORY, EXECUTIVE OFFICES AND EXPORT

COVERING MACHINES



of Quality

- Individual motor drive.
- All gears readily accessible and totally enclosed in head end.
- Variable elongation drive totally enclosed in head end.
- Ball bearing spindles.
- Variable upper spindle drive totally enclosed in foot end.
- Specially selected hardwood reels with aluminum arms.
- Cast iron spindle rails with rugged flanges.
- Rigid overall construction.
- Adjusting shoes on ends and samsons for easy leveling.

INSTALLATION STATISTICS for a 40-End Machine

Overall floor space	14′ x 5″ x 30″
Overall height from floor	6′ 2″
Horsepower required	5 H.P. motor
Total spindles	80
Regular size reel	54″
Net weight	3500 lbs.
Shipping weight	3800 lbs.

MACHINE CO.

Textile Machinery

DIVISION PAWTUCKET, RHODE ISLAND, U. S. A.

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ATLANTA, GA.
815 CITIZENS AND SOUTHERN NATIONAL BANK BUILDING
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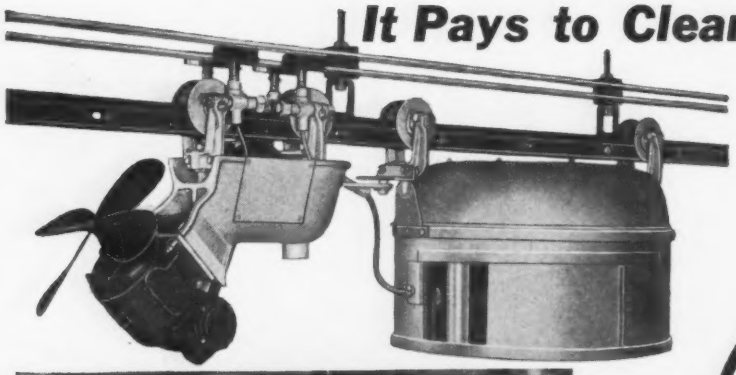
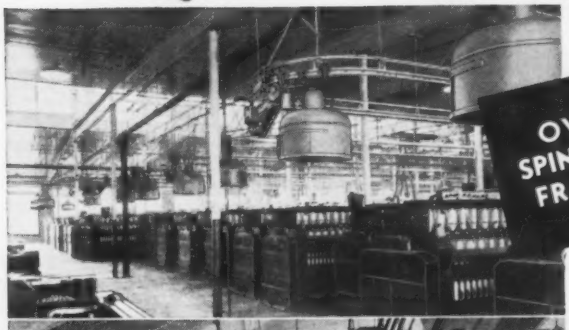


It Pays to Clean . . . . Automatically

and you can do it better with

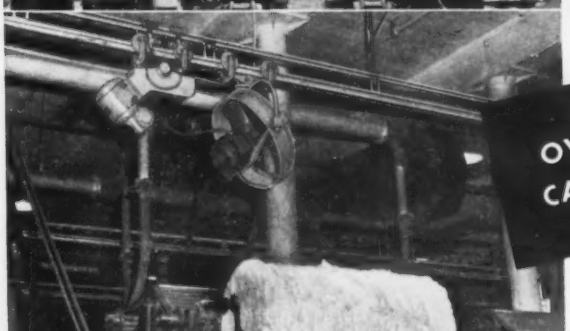
AMERICAN MONORAIL

Automatic Cleaners

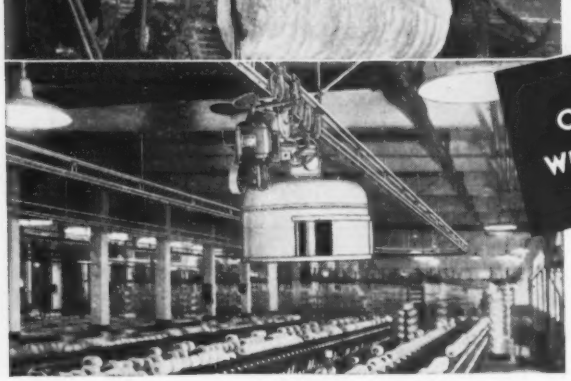


Overhead travelling cleaners not only keep frames clean but also send a blast of air toward ceiling, eliminating hand cleaning of overhead equipment.

A swirling column of air circulates freely through twister creels to eliminate breakage due to lint accumulation. Low headroom blower overcomes unusual ceiling conditions over high creels.



Card room ceilings are notoriously hard to clean. A high velocity column of air from a travelling fan directed against the ceiling prevents accumulation of fly on ceiling equipment.



High speed operation of winders can be greatly retarded by excessive lint. By preventing any accumulation on these machines maximum production is assured.

Let an American MonoRail Engineer explain the advantages of Automatic Cleaning. Send for illustrated catalog "Automatic Cleaning and Overhead Handling for Textile Mills."

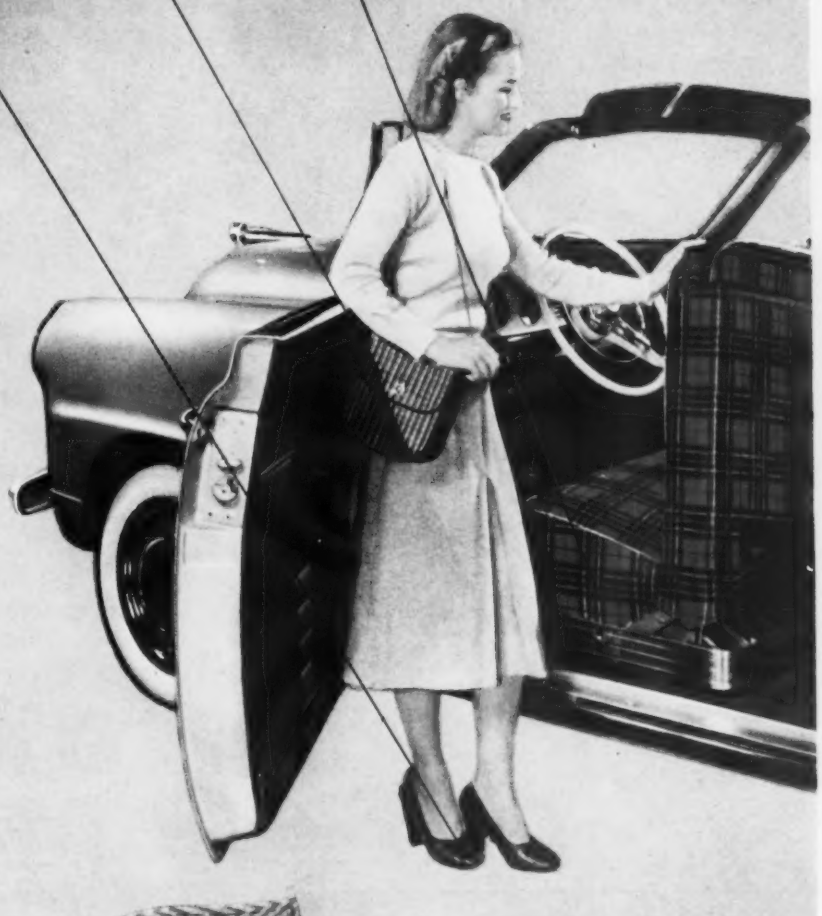
THE AMERICAN MONORAIL COMPANY

13108 ATHENS AVENUE — CLEVELAND 7, OHIO

SARAN

SARAN

BY NATIONAL



Made For Wear . . . Styled For Sales. Wherever fabric beauty must be practical, *Saran* is the answer. Here, in the newest seat covers, are color and beauty that will withstand rain, sun and rugged usage. Saran won't snag, sag or scuff and this amazing fabric permits the easy removal of surface dirt and dust. That's why Saran is the first choice in seat covers for motorists everywhere. + Think of the markets Saran can open for you! Its long-lived beauty makes it a favorite for fine furniture . . . and its great wearability is a natural in seatings for restaurants, theaters and waiting rooms. Put this career fabric to work for you in these profitable markets. Join the swing to Saran . . . build your opportunity on this modern textile material by writing National for further information.

REG. U.S. PAT. OFF.

THE
National plastic products company
ODENTON • MARYLAND

New York: Empire State Building • Los Angeles: Bankers Building

SARAN

SARAN BY NATIONAL *denotes monofilament, rattan and tape manufactured by The National Plastic Products Company from Dow's Saran, and supplied to mills, weavers and other fabricators.*

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
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that means Better Service and Definite Savings for You!

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Apartment Houses
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Dryers
Dust Collectors

Evaporative Condensers

Fan Heating Systems
Filtering Systems

Generator Cooling
Grain Drying

Hay Driers
Hair Dryers
Hospitals
Hotels
Humidifiers

Kitchens

Laundries

Mines

Oil Burners

Pharmaceutical Mfg.
Pneumatic Conveyors

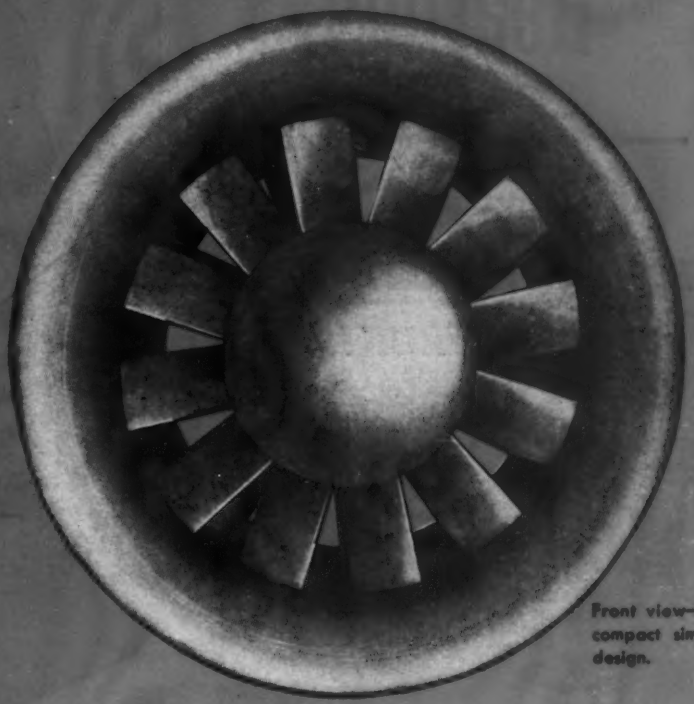
Railroad Cars
Refineries
Residence Heating

Schools
Ships
Stokers

Textile Mfg.
Tunnels

Unit Coolers
Unit Heaters
Vacuum Cleaners

Wind Tunnels



Front view—showing compact simplicity of design.

"SERIES 1000" *JOY AXIVANE FANS*

Write for our new complete Bulletin describing the Joy Axivane Fan and the "Series 1000" stock line. Now ready.

Consult a Joy Engineer

"Series 1000" is a line of stock fans with an unequalled range in size and volume.

This means quick delivery, and low maintenance, together with all the advantages of this remarkable Trailer designed fan, such as—compactness, self-enclosed motor, on-the-job adjustable blades, less weight, less cost to install—a truly outstanding fan engineering achievement.

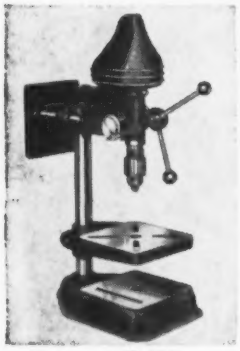
WAD 1-146

JOY MANUFACTURING COMPANY

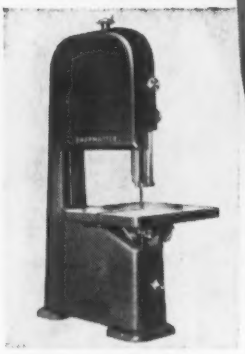
GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

Norma-Hoffmann
PRECISION
Bearings

HELP
KEEP SHOPMASTER TOOLS
SMOOTH RUNNING

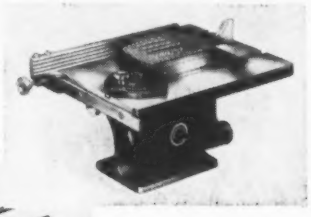


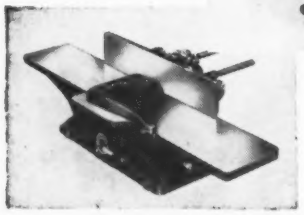
Shopmaster Drill Press
12 inch ½ inch chuck



Shopmaster Band Saw
12 inch tilting table

Shopmaster Jointer
6 inch, extra long table





Shopmaster Bench Saw
8 inch tilting table

To maintain accuracy, rigidity, speed and dependability, **Shopmaster Inc., Minneapolis, Minn.,** employs *Norma-Hoffmann Precision Bearings* exclusively in its line of high quality "Shopmaster Tools" — a few of which are illustrated here. The reason, Shopmaster Engineers know from experience that Norma-Hoffmann Precision Bearings contribute to the performance of the machines . . . give years of trouble-free operation with minimum maintenance.

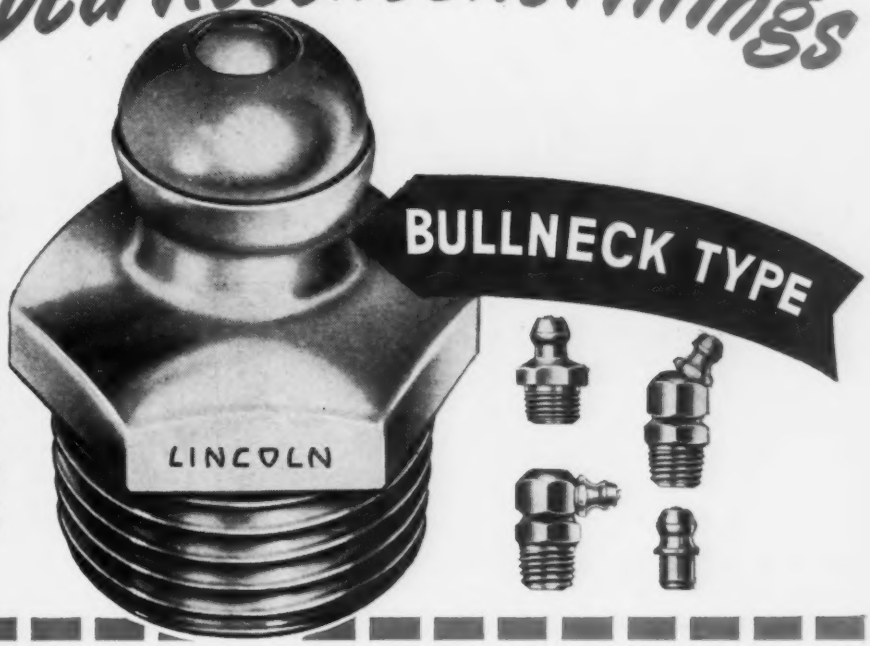
Whatever your bearing problems, it will pay you to investigate *Norma-Hoffmann Precision Bearings* for your designs. 108 distinct series and over 3,000 sizes are available to meet every load, speed and duty. Write for catalog.

NORMA-HOFFMANN BEARINGS CORPORATION
STAMFORD, CONNECTICUT

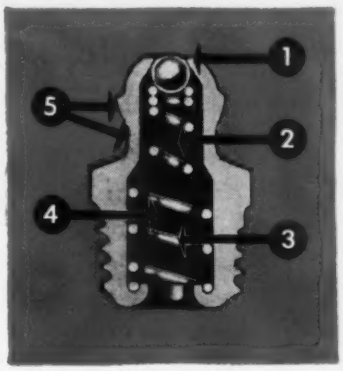
FIELD OFFICES: New York, Chicago, Cleveland, Detroit, Pittsburgh, Cincinnati, Los Angeles, San Francisco, Portland, Ore., Seattle, Phoenix

New Improved KLEENSEAL Fittings

- **KEEP DIRT OUT OF BEARINGS...**
- **REQUIRE LESS PRESSURE BY 20%**
- **PROVIDE MORE LUBRICANT VOLUME BY 30%**
- **SECURELY CONTACTED BY ALL COMMERCIAL HYDRAULIC COUPLERS**



These Grease Fittings (Bullneck Type), were originally developed by the Lincoln Engineering Company for the United States Army Ordnance Department. They incorporate the most desirable characteristics of former types of high-pressure fittings and permit standardization on one, all-purpose fitting (Bullneck Type). They represent the first major improvement in grease fitting design that does not obsolete couplers and grease guns in general use today—they can be securely contacted by all commercial hydraulic couplers.



Check THESE FEATURES

1. . . . **Flush Ball Check**—Head can be wiped clean without forcing dirt into fitting and into bearing.
2. . . . **Large Grease Passage**—The larger internal diameter permits greater flow of lubricant.
3. . . . **Special Spring Design**—Spring cannot be compressed to restrict flow of the heaviest lubricants.
4. . . . **Greater Flow—Less Resistance**—The larger internal area requires less pressure to clear the fitting.
5. . . . **Sturdier Construction**—Enlarged neck size and projecting locking pad protect against damage and wear.

Trade names LINCOLN, KLEENSEAL, BULLNECK registered U. S. Pat. Office.

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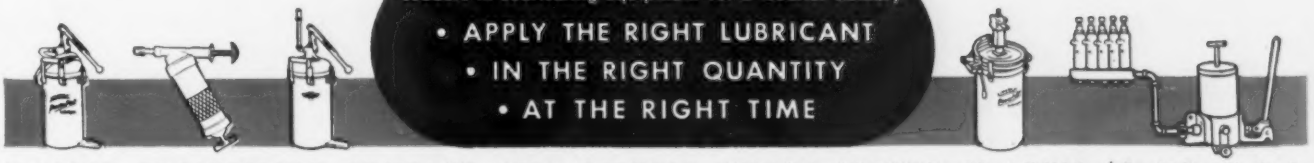
Leaders in Lubricating Equipment for a Quarter Century

- APPLY THE RIGHT LUBRICANT
- IN THE RIGHT QUANTITY
- AT THE RIGHT TIME



LINCOLN ENGINEERING COMPANY, 5701 NATURAL BRIDGE AVENUE, ST. LOUIS 20, MO., U. S. A.

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CHICAGO—Lincoln Engineering Co., of Ill.—Calumet 6022
DETROIT—Lincoln Engineering Co.—Madison 3484
PITTSBURGH—Lincoln Engineering Co.—Montrose 1444

LOS ANGELES—Lincoln Engineering Co., of Calif.—Richmond 0151
CLEVELAND—Lincoln Lubricating Systems, Inc.—Express 4334
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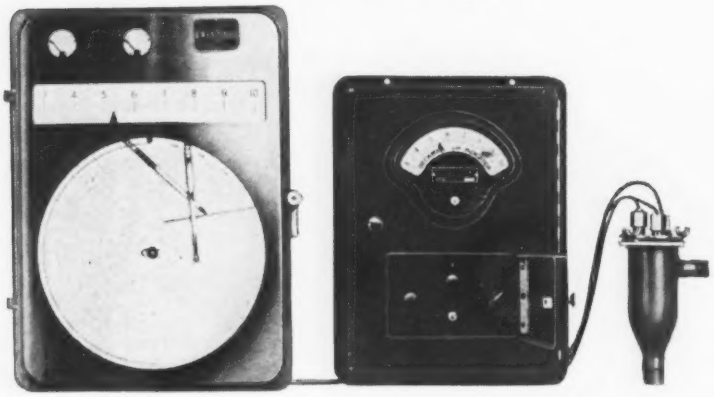
Distributors in all Principal Cities.

848-7

How To Keep **pH** *Under Perfect Control*

Bristol's Continuous **pH** *Controller Maintains The Value You Select Automatically*



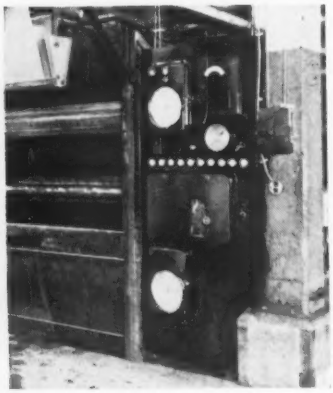
You get *precision control* of pH value when you rely on this accurate Bristol controller to keep pH "on the nose" for textile processing. Eliminates periodic sampling and manual control. Use it for:

- **Neutralizing after carbonizing.**
- **Condition of water for dye and bleach house.**
- **Neutralizing dye house waste.**
- **Testing condensate from heating coils and automatically dumping it if acid.**
- **Raw wool scouring.**

This instrument pays for itself by making you *sure* about pH. Many successful installations in textile plants here and abroad. INSTRUMENTS IN STOCK FOR IMMEDIATE DELIVERY. Bulletin pH 1302 will tell you more. Write: THE BRISTOL COMPANY, 157 Bristol Road, Waterbury 91, Conn. (The Bristol Co. of Canada, Ltd., Toronto, Ontario; Bristol's Instrument Co., Ltd., London, N.W. 10, England.)

IMMEDIATE DELIVERY

Bristol has hundreds of Recording and Controlling Instruments as well as Pyrometers and Thermocouples *in stock* for immediate delivery. Send for Bulletin W1811 Stock Instruments, and Bulletin p1235, Thermocouples and Pyrometer Accessories.



pH and cycle control on wool scouring at Kent Manufacturing Company

BRISTOL

Engineers process control for better products and profits

BRISTOL INSTRUMENTS FOR THE TEXTILE PLANT

For Cotton Weaving And Finishing:

Automatic Control for Raw Stock, Yarn, and Piece Goods, Dryers, Sour Pit, Mixing Water, Boiling Off Kettles, and Bleaching Kettle.
Temperature Control for Dryers.
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Slasher Control.
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Automatic Control Dye Jigs, Dye Machines, Dye Kettles.
Humidity Recorders for Carding, Combing, Drawing, Spinning, Weaving.
Flow Meters for Measuring Steam to Each Department.
Liquid Level Recorders and Controllers for Water Tanks and Wash Wheels.

For Woolen And Worsted:

Automatic Temperature Control for Scouring, Drying, Dyeing, Steaming, and Water Mixing.
Coordinated Process Control for Dyeing and Wash Wheel.
Humidity Control for Sorting, Carding, Weaving, Spinning.
Time-Temperature Control of Dye Vats, Machines and Tubs.
Liquid Level Control Instruments for Water Tanks, Wash Wheels.
Tachometers for Yardage Through Tentering Dryer.
Automatic Temperature Control of Water Mixing.
Control for Back Washers and Back Wash Dryers.
Control for Carbonizing.

For Silk And Rayon:

Control for Degumming Tanks.
Control for Dyeing.
Rayon Slasher Control.
Control for Bleaching and Drying.
Humidity Control for Twist Set Box.
Humidity Control in Rayon Spinning Room.

For Knit Goods:

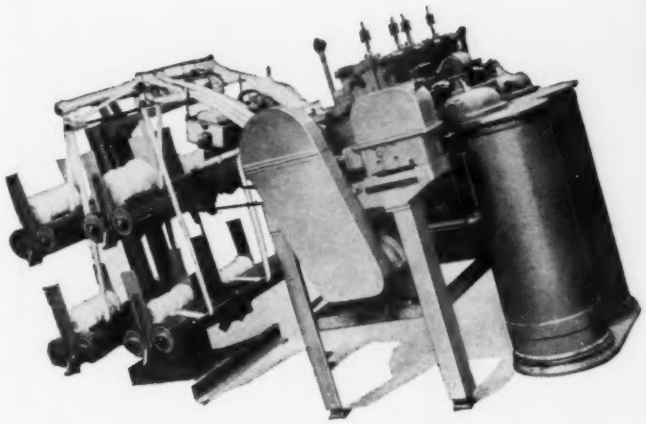
Control for Scouring, Boarding, and Dyeing.
Control for Washing and Bleaching Equipment.

For Power Plant:

Flow Meters for Steam and Water.
Recording Voltmeters and Ammeters for Electric Lines.
Recording Gauges for Steam Pressure, etc.
Recording Thermometers.
Draft Recorders and Controllers.

Further information supplied on request

AUTOMATIC CONTROLLING AND RECORDING INSTRUMENTS



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more practical adaptation of pin control

in worsted type yarn processing

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The WARNER & SWASEY PIN DRAFTER

- *Produces a more uniform sliver, resulting in more uniform yarn having evener count . . . greater strength.*
- *Adaptable to the handling of either ball top or combed sliver, Bradford or French comb.*
- *Fewer operations, lower cost; increased efficiency of spin, better cloth.*

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TEXTILE MACHINERY DIVISION

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Yes, I would appreciate additional information about the Warner & Swasey Pin Drafter.

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D-348

You Can Do It Better, Faster, for Less . . . with a Warner & Swasey

The TUFFERIZING PROCESS—developed and exclusively owned and used by Howard Bros. cuts and forms wires with an accuracy never before obtained in the making of card clothing. The wires are formed with precision and placed accurately in the famous Tuffer Foundation . . . when drawn on the cylinder they fit snugly—*sides perfectly parallel and every point in place.*

"Tuffer" Men help you to get Better Quality

Howard Bros. representatives are qualified to help you get the best possible results from your carding equipment. They are men of specialized training and experience who can give valuable assistance in improving quality and increasing efficiency in YOUR card room.

Here's what one large textile unit says: "We appreciate the excellent service your company has given us in the past. Your man came up and worked in our carding department, checked the condition of our card clothing, *doing an excellent job and to our benefit.* It is a pleasure to put our appreciation on the dotted line."

Time and time again we receive similar words from Howard Bros. customers.

Talk over your particular problems with a Howard Bros. representative. There's no obligation on your part. Get in touch with your nearest Howard Bros. plant or office.

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TUFFER CARD CLOTHING **IMPROVES PRODUCTION ALL ALONG THE LINE**

Free to you from Glidden Experts!

Today's First and Finest COLOR SERVICE ...Tailor-made FOR YOUR PLANT

Since establishing the paint industry's first laboratory devoted exclusively to research on functional color way back in 1930, Glidden has been perfecting today's finest color service. For *this* service is more than printed guides to general principles—it offers in beautiful, easy-to-follow room elevations complete color prescriptions, based on a study of your individual plant and your individual lighting problems.

With this Sight Perfection Color Service and Glidden SPRAY-DAY-LITE, America's fastest-selling interior maintenance paint, you can make your next painting pay tremendous dividends. Companies in practically every industry who have used this free service during the past 18 years have reported increased production resulting from improved seeing conditions and safer, pleasanter working conditions. The coupon below will bring you more facts on today's first and finest color service—and the reasons why more gallons of SPRAY-DAY-LITE are used in the nation than any other finish of its kind. Mail it today!

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☐ Please send literature to indicate the practical and thorough nature of the *Sight Perfection* painting program you will design especially for us.

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— LOOMS BIG . . .

When "work" runs bad—when production is cut because of "pick-outs" and the percent of "seconds" is on the increase, look behind the looms. Lack of air for "blow-down" between beam doffs and during "scheduled cleaning" periods because of air compressor or vacuum pump failure often lowers quality and production. Correct lubricants best assure unfailing performance.

A long history of satisfactory performance lies behind the use of RUBILENE OIL for the lubrication of textile mill auxiliary equipment. Its fine qualities make it first choice for this important job of lubricating heavy-duty air compressors and vacuum pumps. Let us advise you on the correct grades of RUBILENE for your specific installations.

SINCLAIR

..BEHIND THE LOOMS

TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVE., NEW YORK 20, N.Y.

Many cotton mills have found it profitable to consult Corn Products textile laboratory at Greenville, South Carolina. The services of our technicians are offered textile manufacturers without obligation.

CORN PRODUCTS SALES COMPANY

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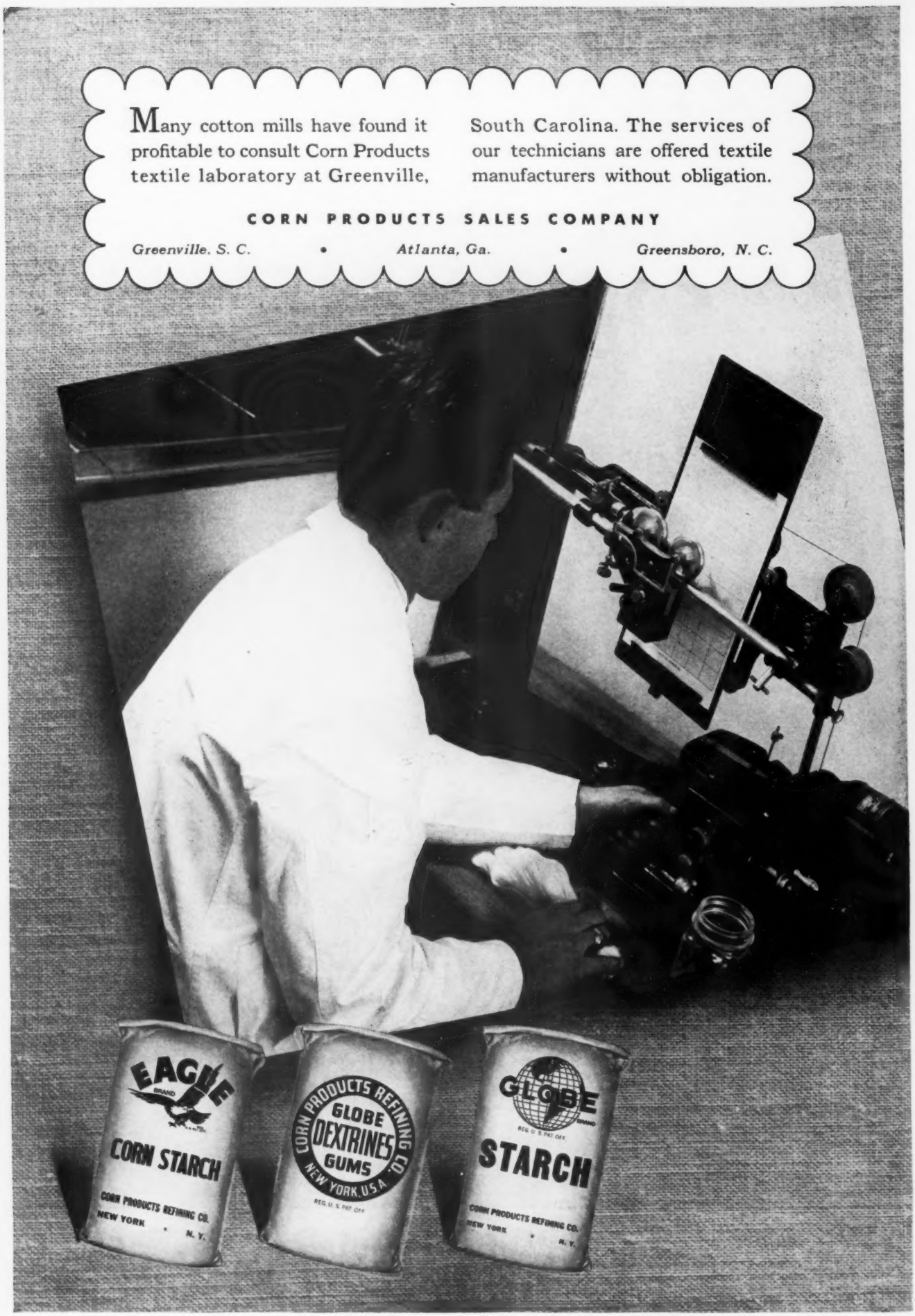
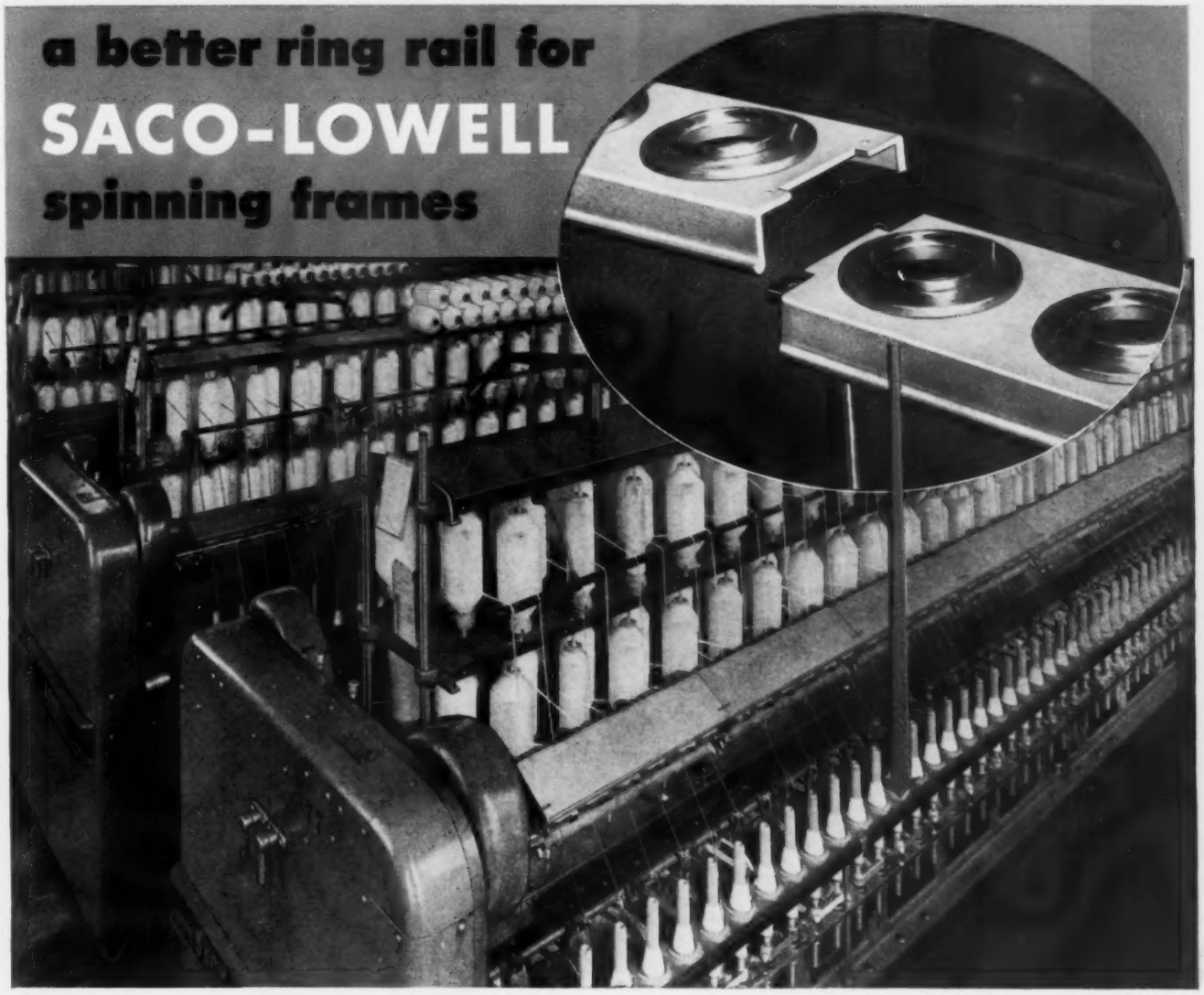




Extruded from Aluminum for Lighter Weight and Better Balance

A LEADER never overlooks an opportunity to build greater value into his equipment. That's why modern cotton and rayon spinning frames built by Saco-Lowell Shops, Biddeford, Maine, now feature ring rails extruded from Reynolds Aluminum.

Advantages of these new ring rails are many. They are extruded to their final cross section, with thicknesses varied to provide maximum strength and stiffness. They are made of high-strength, heat-treated aluminum alloy.

Weight is but one-third of the steel ring rail formerly used. Result: smoother reciprocating motions, and, consequently, better bobbins.

There is little or no maintenance cost connected with aluminum. Under normal mill operating conditions its smooth finish is retained without the aid of "protective" coatings. Aluminum can't rust, and yarn won't stain from moisture condensation on aluminum.

For information on aluminum extrusions and for assistance in planning your product requirements, write our nearest field service office, or Industrial Machinery Division, Reynolds Metals Company, 310 Hanna Building, Cleveland 15, Ohio.

REYNOLDS METALS COMPANY, ALUMINUM DIVISION, LOUISVILLE, KENTUCKY

REYNOLDS *Lifetime* ALUMINUM

Annual Report
to the
Weaving Industries
on
C & K Loom Developments

No revolutionary changes are about to burst from the C&K Engineering Research Laboratories. For no lucky accidents have occurred here in the past year to short-cut any of the planned projects which move forward steadily on the basis of careful, organized work. Progress may be reported in these directions:

REDUCTION OF VIBRATION IN LOOM FRAMES: New methods of mounting looms are being studied, in an effort to reduce transmission of vibration to the mill building without increasing the motion of the loom. Dynamic balancing is also being studied. And progress is being made by use of light metals.

LAY: Magnesium and aluminum handrails are being mill-tested. And a magnesium lay indicates a possibility of higher speeds for narrow-fabric looms.

DRIVES: *Direct Drives,* as used on large, slow-speed looms, have been improved in two ways: (1) by a solenoid brake mounted directly on the motor shaft, or (2) dynamic braking which stops the motor-rotor by introducing rectified power in the windings.

Independent Drives, as used on high-speed looms, require a clutch to handle the flywheel effect of the motor. C&K has developed for the S-6 Loom a plate clutch, of great capacity and small clearances, which can be easily released in a remarkably short interval. Also, this clutch may be re-lined without disassembly. At the same time, experiments are in process on an electrically operated clutch.

MAGAZINE: All C&K types of rayon looms are now being built with vacuum control of the filling yarn.

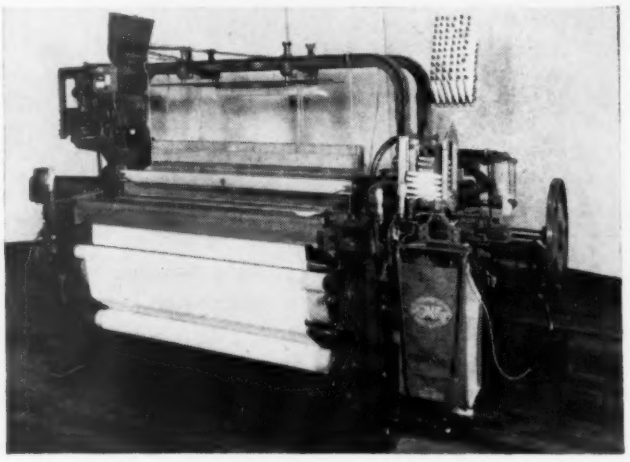
FEELER MOTION: The feeler which detects absence of yarn on bobbins, and which actuates the magazine, has been developed in two forms: (1) an electric feeler for delicate yarns, and (2) a mechanical side-slip feeler for cotton and worsted. Both these feelers have a light touch, yet are positive-acting. Studies indicate possibilities of further improvement.

PROTECTION: In stopping the loom to prevent the shuttle from damaging the warp, the problem is to absorb a large amount of energy with minimum shock to the machine. On large, slow-speed looms, dynamic braking of the motor is successfully used. On high-speed looms, other methods are required and these are now under experiment.

LET-OFF: Increasing diameter of loom-beams brings problems in the efficient operation of let-offs, which must maintain uniform tension on the warp, and feed the warp from the beam. C&K is moving toward the use of a let-off driven by a motor controlled electrically by a contactor which is actuated by the warp. This electric control responds to very slight changes in warp tension.

BEAMS: Experiments are in progress on beams of steel, cast iron and light metals, singly and in combination; also on locking devices for adjustable flanges.

In every case, the final decision will be made by weighing the cost of the part or motion against its merits. And in any *case, you may be sure that any new C&K loom-feature will measurably increase weave-room efficiency.*

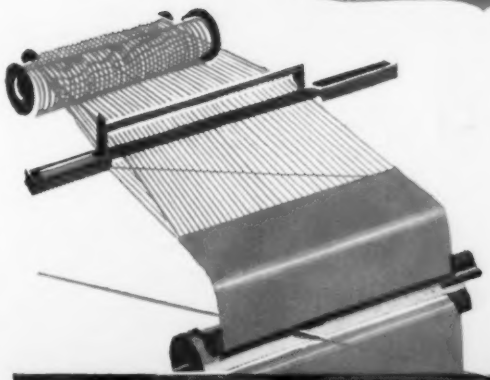


Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.

PHILADELPHIA, PA. • CHARLOTTE, N. C. • ALLENTOWN, PA. • CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

New LOOMS get the right start for a long life...



when the Gulf Lubrication Engineer is "in the picture"

Operators of this progressive mill make sure of long equipment life—they keep the Gulf Lubrication Engineer "in the picture" as these new looms—and all new equipment—are installed.

IF you're installing new looms—or any other new equipment—you'll want to insure your large investment as thoroughly as possible against premature mechanical failures, below-par performance, and high maintenance costs.

Here you'll find the services of a Gulf Lubrication Engineer very helpful. He will make a complete survey of each unit of equipment and study your particular operating conditions to determine their influence on lubrication.

After analyzing every important factor, he will recommend for every piece of equipment the Gulf quality oils or greases which will provide maximum protection against wear. Then you can be sure you've made the right start—not only for a long life, but for a trouble-free life with low costs for maintenance.

For the co-operative counsel of a Gulf Lubrication Engineer, write, wire, or phone your nearest Gulf office today.

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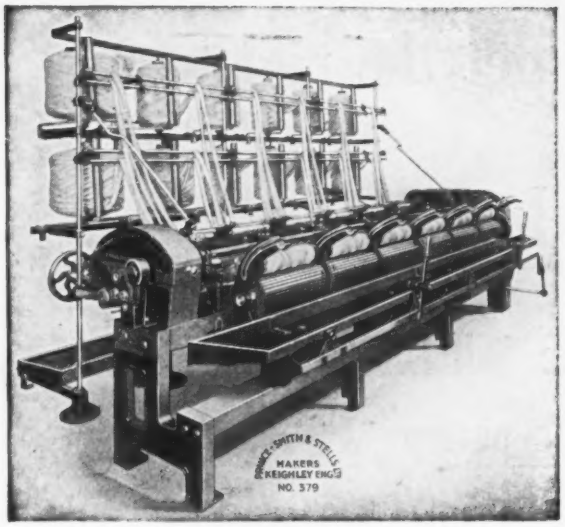
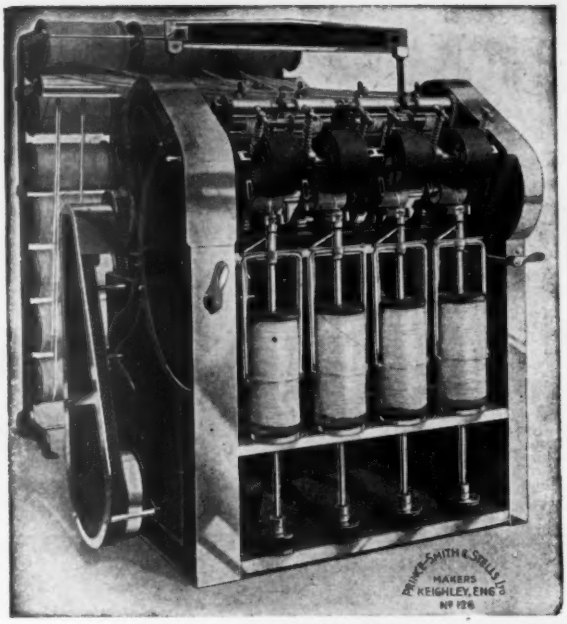


● ANGLO-CONTINENTAL DRAWING BOX



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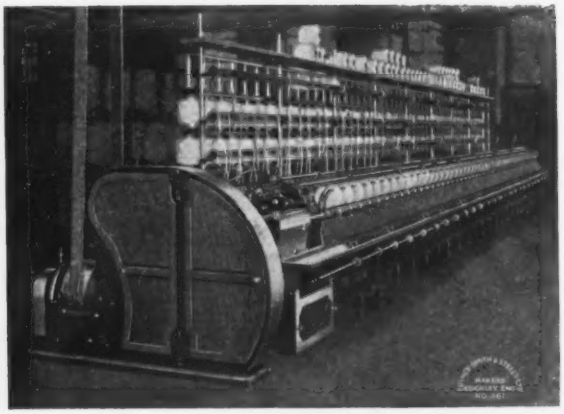
We manufacture Machinery capable of producing all types of

worsted yarns

ENGLISH, ANGLO-CONTINENTAL & CONTINENTAL SYSTEMS



● FRENCH DRAWING BOX

When you are considering extensions or alterations to your plant may we have the pleasure of offering you our services?

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Measure Pick-Counter Value

by all these Vantage Points of

VEEDER-ROOT 2-3 PICK COUNTERS

Reset and Non-Reset

1 QUICK CONVERTIBILITY:
Right in your own mill, your own men can do the job of converting Veeder-Root Pick Counters from 2 to 3-shift operation . . . by adding the 3rd counting unit as shown below at right.

2 YALE LOCK ON FRONT DOOR:
Only the authorized key-holder can clear the readings by resetting.

3 COMPRESSION-CLAMP DRIVE:
Save time and money in installation of 2-3 Counters. *No need to drill shaft.*

4 NEW WHEELS GIVE STRENGTH WITH LOW WEIGHT

5 NEW WHEELS RESIST OVER-THROWING

6 EASY RESETTING KNOBS:
Large, smooth-surfaced, and patterned to fit the fingers, these streamlined knobs are quicker and easier to reset.

7 "BQ" COUNTER BRACKET:
Eliminates thrust to counter drive-shaft . . . eliminates need to support worm housing.

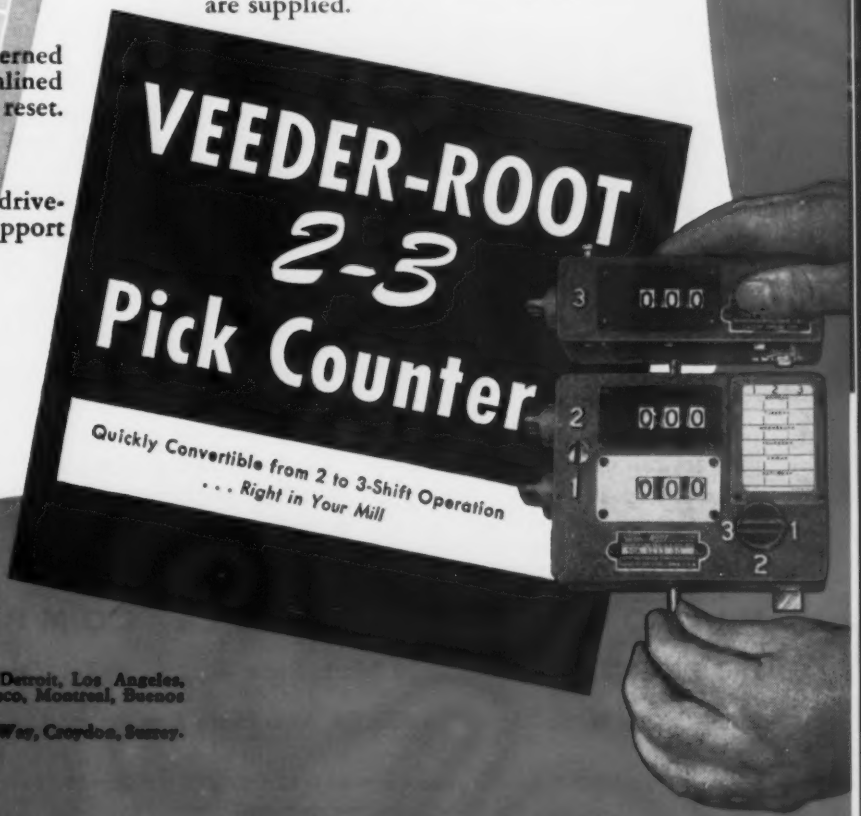
8 CONVENIENT COUNTER CARD:
Enables you to keep constant check on production efficiency.

9 BOLD VISIBILITY:
Large, lithographed figures . . . *not sunken,* but right up on the surface of the wheel, for easier reading.

10 STEEL MOUNTING INSERTS:
4 heavy steel mounting inserts for extra strength to withstand loom vibration.

11 ALL METAL PARTS TREATED AGAINST CORROSION:
Greater protection against high weave-room humidity.

12 COMPLETE INSTALLATION:
All necessary parts and equipment are supplied.



VEEDER-ROOT INC.
HARTFORD 2, CONN., GREENVILLE, S. C.

OFFICES IN: Boston, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Montreal, Buenos Aires, Montevideo, Mexico City.

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In Canada: Veeder-Root of Canada, Ltd., Montreal.

WHEN YOU ARE IN THE MIDDLE...

here's a man who can help you out

WHEN you are in the middle—between bad-running spinning or twisting and a management that is pressing for better production and quality—it's a good time to talk to a Victor Service Engineer.

He has been in on thousands of spinning and twisting problems, and seen them through to a successful solution. He can not only recommend the right traveler for the job, but can often make other suggestions for improving yarn quality and production that will change front office complaints to compliments.

Now, in the face of increasing competition for peacetime markets, you need his resourceful cooperation—the friendly, result-getting Victor service that has made Victor Travelers standard for over 8,000,000 spindles of spinning and twisting throughout the industry.

New fibers, new blends that increase your problems are seldom new to the Victor Service Engineer. You find him ready to share his important information on any fiber. Write, wire or phone the nearest Victor office . . . for prompt service.

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THEN, AS NOW, **COLOR** SOLD TEXTILES

The crusades, originating in the twelfth century to recapture the Holy Land from the Moslems, were a military failure, but the West was stimulated by contact with a cultured and artistic civilization. Some of the most prized trophies which the feudal lords stole or bartered were the exquisite oriental rugs, woven from the finest of dyed yarns. Then, as now, color sold textiles.

Franklin Process

LARGEST PACKAGE DYERS IN THE WORLD

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New York Representative, 40 Worth St.

Every textile executive knows that most of his profits in the foreseeable future must come from increased production, reduced operating costs and improved quality. He also knows that he has a choice of modern winding equipment which will produce according to these conditions, at least temporarily. The trick is to INSURE such profits over a period of years so that the new equipment will have an opportunity to pay for itself. That requires FLEXIBILITY for the fibre requirements of a mill may change overnight in these fluid times. The FOSTER Model 102 is the ONLY winder of its type which has such flexibility, in addition to the other qualifications.

How to INSURE your winding profits

Here's the story in brief:—

FLEXIBILITY – Will handle any count or type staple yarn with same traverse mechanism—any angle of wind from 9° to 18°—any ordinary taper. Can be equipped to wind knitting cones, warper cones, dye packages, tubes or short traverse cheeses, one type on each side of the machine if desired.

INCREASED PRODUCTION – Doubles production over obsolete models because of high winding speeds (up to 700 y.p.m.) and labor saving devices mentioned under "ECONOMY". 7″traverse packages instead of standard 6″, if desired.

ECONOMY – Reduces operating costs ⅓ under obsolete models because of self threading tension devices, easy doffing, 7″ traverse package, if desired, and empty bobbin conveyors which empty into standard sized trucks. Repair costs as low as $3.50 per year per 100 spindle machine.

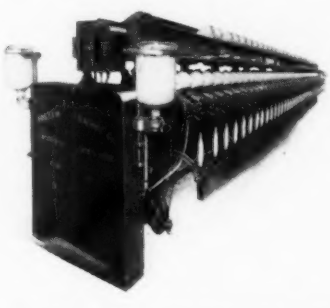
QUALITY PRODUCT – Automatic inspection. Conditioned yarn. Convex base prevents underwinding and nipping. Ribbon breaker prevents ribbon wind. Uniform density and properly shaped cones. Minimum tension on soft twist yarns prevents excessive breakage.

Insure your winding profits. Specify FOSTER MODEL 102. Send for Bulletin A-95 for complete data.

FOSTER MACHINE CO.

Westfield, Mass., U.S.A.

Southern Office: Johnston Bldg., Charlotte, North Carolina; Canadian Representative: Ross-Whitehead & Co., Ltd., University Tower Bldg., 660 Ste. Catherine Street, West, Montreal, Quebec; European Representative: Muschamp Taylor Ltd., Manchester, England.



FOSTER MODEL 102

The Flexible Winder

FOR COTTON, MERCERIZED, WOOL, WORSTED, MERINO, SPUN SILK OR SPUN RAYON YARNS

Your plant has danger spots you may be neglecting . . . where corrosion is continuously at work doing expensive damage to structures and equipment.

Guard *all* your plant from moisture, fumes, smoke and weather with Flintkote HYDRALT* Protective Coatings.

Hydralt is Flintkote's registered name for asphalt in its most modern form... a stable, mineral-colloid emulsion. And on metal or masonry, anywhere in your plant, Hydralt Protective Coatings give you important *acknowledged* advantages over cutback asphalts or hot asphalt coatings.

You can apply *Hydralt* Protective Coatings *cold* with trowel, brush or spray, depending on requirements and the type used. Odorless and non-toxic, easy and economical to use, Hydralt Protective Coatings will not crack, craze or alligator under exposure. And they will not flow under heat or become brittle when cold.

Durable? Indeed they are. Tests prove that Hydralt Protective Coatings will outlast any other form of bituminous coating exposed to weather.

Check up. See how many places in your plant need protection. Then . . . for full details on how you can protect them... write for our latest folder on *Hydralt Protective Coatings.*

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INDUSTRIAL PRODUCTS DIVISION
30 Rockefeller Plaza, New York 20, N. Y.

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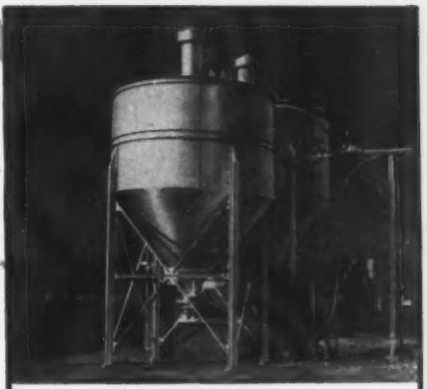
FLINTKOTE
Products for Industry

FLINTKOTE INDUSTRIAL PRODUCTS

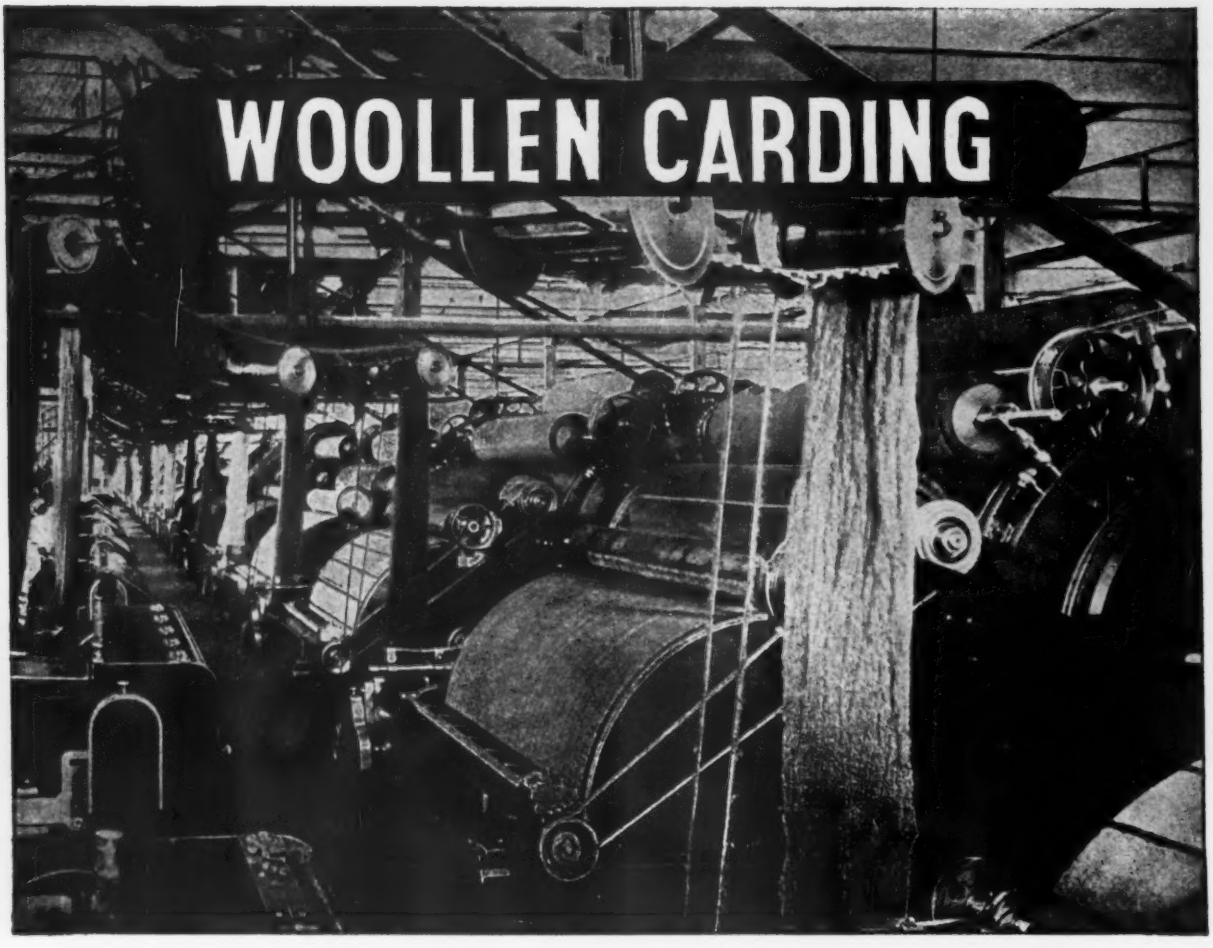


BRIGHTEN UP...
Use Flintkote
ALUMINUM PAINT

Flintkote Aluminum Paint is the answer to the problem of adequate protection where light reflectivity is a factor.

For best protective results, use Flintkote Aluminum Paint over the proper coating of Hydralt Protective Coating.

Flintkote Aluminum Paint (asphalt base) is compatible with bituminous coatings. When used over asphalt, it will not cause bleeding, a common characteristic with oil base paints.



ENGLISH, SCOTCH and AMERICAN SYSTEMS

Illustration of a modern high production Yorkshire layout showing Scotch feeds between scribbler and carder engines.

Photo. by courtesy of Messrs. J. J. L. & C. Peate, Ltd., Guiseley, Yorks.

Designed by experts and embodying all the accepted principles of modern woollen carding technique for quality production and highest practicable speeds, our machines are precision built and every machine supplied to the trade is backed by a world wide reputation, which means that it is built from the finest quality materials and incorporates every proved feature of modern practice.

A new and comprehensive catalogue describing and illustrating our carding sets for the English, Scotch and American systems, is in printer's hands. Will those interested please apply on their business letter heads, for a copy when available.

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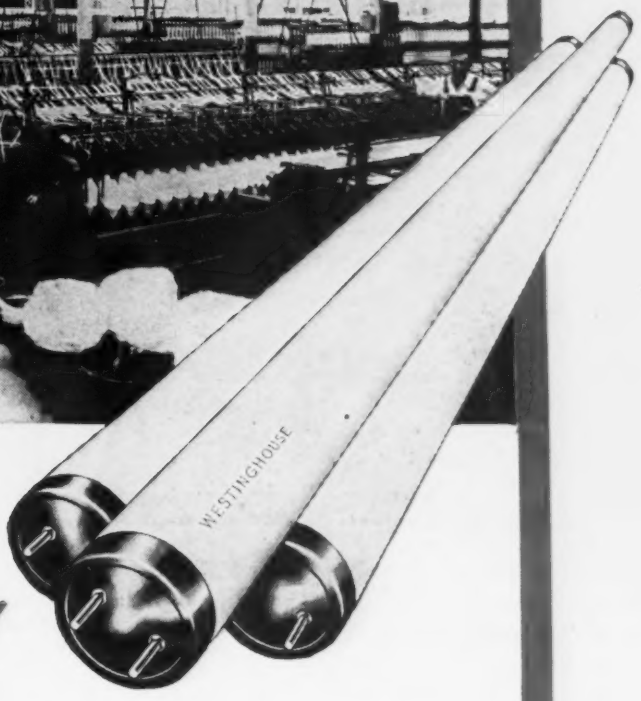

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Westinghouse Fluorescent Lamps bring to industry a practical means of obtaining the high intensity lighting needed for modern speed production. They provide an even distribution of light, are cool burning and duplicate most closely the color of outdoor daylight. Westinghouse Fluorescent Lamps provide an economical way to speed production, decrease spoilage and reduce accidents. For better See-Ability in your plant or office . . . for a lighting investment that will continue to keep costs down and increase the productivity of both men and machines...specify Westinghouse—the name you know in lamps.

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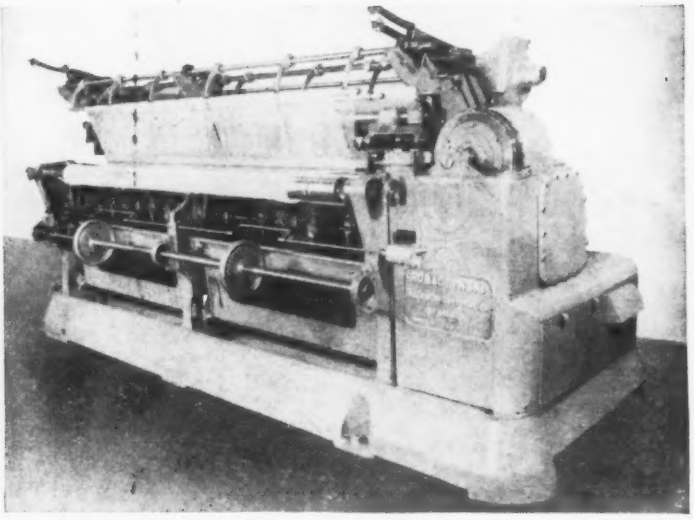
To STEP UP Production, IMPROVE Quality, LOWER Costs see these Knitters in Operation



Robaczynski Tricot

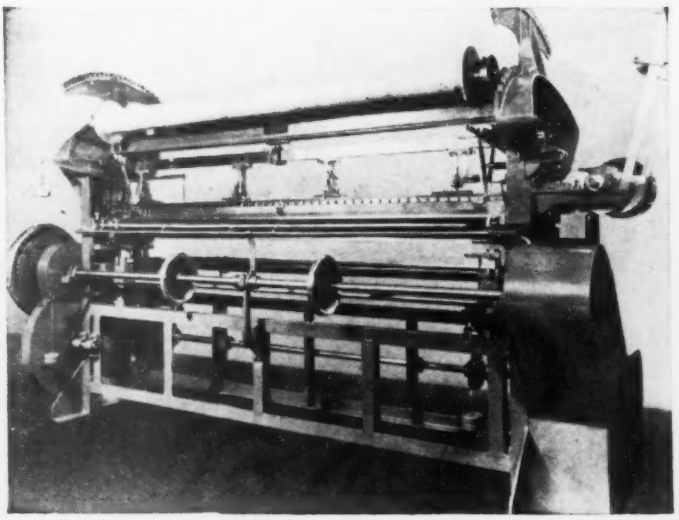
Built in sizes from 90" to 180 inches with warps up to 21" in diameter. Two guide bar system with provisions for a third bar. Heavy foundation base; sensitive tension let off brakes arranged for high range of speed with indicators for adjustments from the front of the machine at the proper height for a man to put up insides.

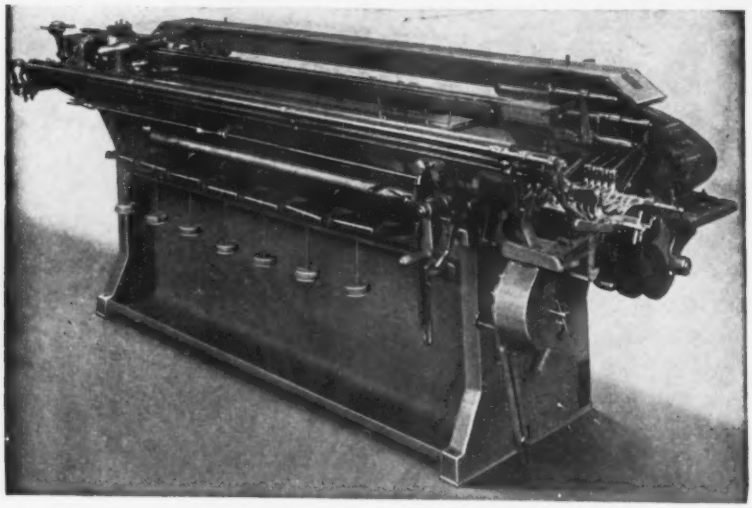
Produces solid colors or striping, as desired, for underwear and outerwear, veiling, hair nets, mosquito netting and other types of fabric.

RASCHEL TYPE WARP KNITTER

A simple, smooth running, steel fabricated machine. Equipped with sand rollers, two needle beds, four guide bars and pattern drum wheel system. Six bars if necessary or less if so desired.

There are so many fabrics you can knit better and cheaper on this Raschel type warp knitter you owe it to yourself to investigate. It handles any yarn from 10 denier up, (worsted yarns from 5 to 50 counts) at speeds up to 250 courses per minute. All types of designs and varieties of colors. Tell us your problems. There's no obligation. Early deliveries are assured.





Purl Stitch or Link Knitting Machine

Fabricated steel base to prevent warping and twisting. This machine produces chain stitch, cable stitch, genuine basket weave, open work or flat on flat, purl stitch or link and link — also different colors and designs. It has a double sinker with an improved Jacquard card system and needle bed shifting or racking from one to six needles at a time.

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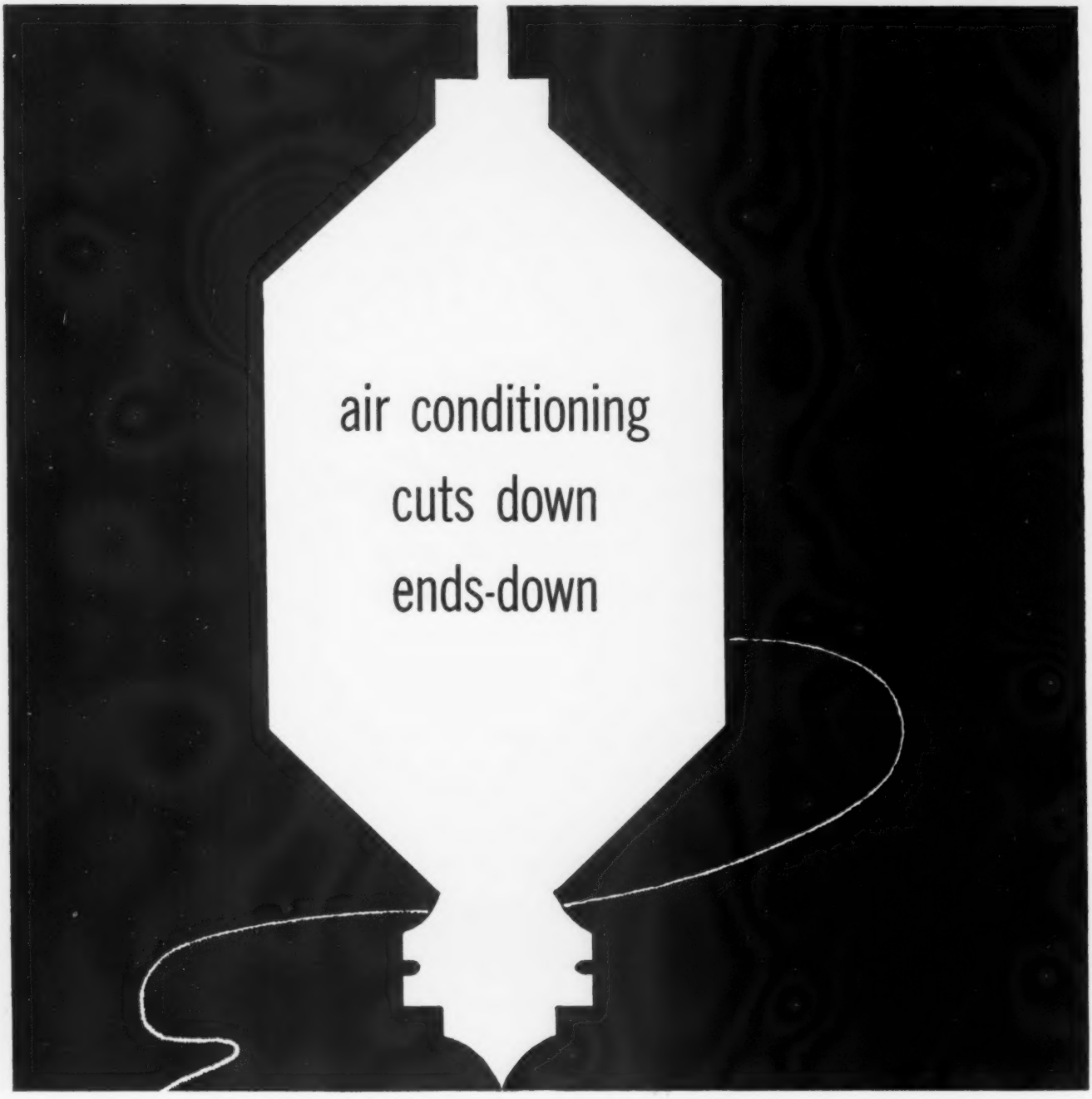

Ends-down have been reduced as much as 50 per cent by installing year-round air conditioning in the spinning room.

Before refrigeration was added to the system of one Southern mill, ends-down used to run 50 to 60 per 1000 spindle hours. They now run only 20 to 30. Spinners who used to waste so much time picking up ends can now tend more sides. Further, the constant filtering provided by air conditioning greatly reduces fly, easing maintenance and improving quality.

Carrier equipment brings other benefits, too. Employees respond with more and better work with this kind of air conditioning. Year-round freedom from excessive heat keeps the most productive workers on the job, reducing both turnover and absenteeism.

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size cooking kettles can't be wrong!

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Controlled rate of rise . . . Controlled cooking temperature . . . Controlled cooking time.

Because each batch is uniform day after day, deposits of size on the yarn are also more uniform. Result—*consistently better weaving.*

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This type of system is only the first step toward automatic control of the whole slashing operation. Ask your Taylor Field Engineer about our accurate control systems for all four steps: *size cooking, storage kettles temperature control, size box level and temperature control,* and *slasher cylinder temperature and pressure control.* Or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

Taylor Instruments

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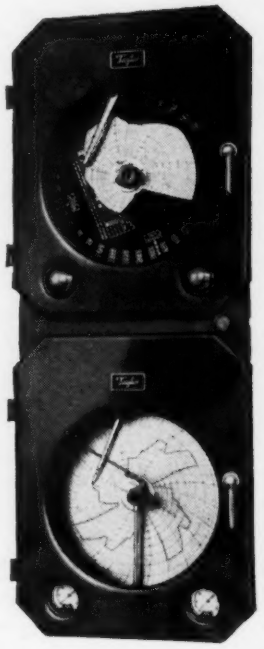

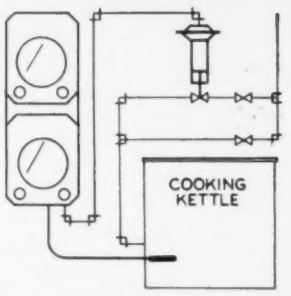

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outstanding non-ionic surface active agents for wool, cotton and synthetic fibers.

- Excellent wetting, emulsifying and scouring properties
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Throughout more than a century of making valves—and valves only—"precision" has been the watchword at Powell. That is why today, in every branch of industry, Powell Valves are noted for efficiency under any and all service conditions.

And don't forget that Powell Engineers are always glad to help you select the precise valves to meet your individual flow control requirements.

The Wm. Powell Co., Cincinnati 22, Ohio

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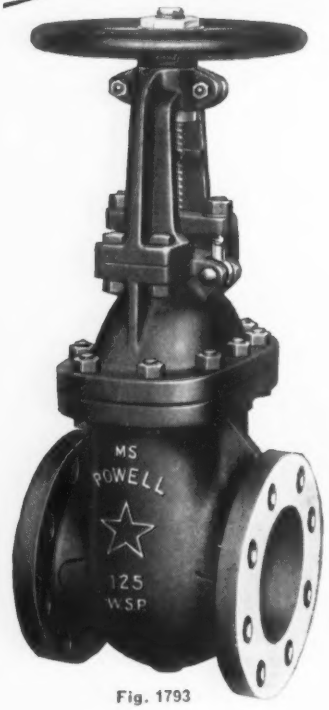

Fig. 1793

Fig. 1793—Large 125-pound Iron Body Bronze Mounted Gate Valve. Made in sizes 2" to 30", inclusive. Has outside screw rising stem, bolted flanged yoke and taper wedge solid disc. Also available in All Iron for process lines.

Fig. 1503—Class 150-pound Cast Steel Gate Valve with flanged ends, bolted flanged yoke, outside screw rising stem and taper wedge solid disc.

Fig. 500—125-pound Bronze Gate Valve with screwed ends, screwed-in bonnet, inside screw rising stem, and either taper wedge solid or double disc.

Fig. 1969—150-pound Stainless Steel Gate Valve with flanged ends, outside screw rising stem, bolted flanged yoke-bonnet and taper wedge solid disc.

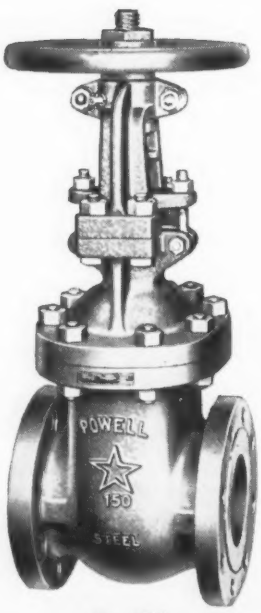

Fig. 1503

Fig. 500

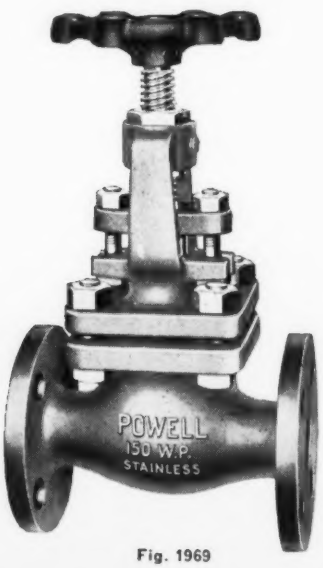

Fig. 1969

POWELL VALVES

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ARE you already using, *or planning to use,* the tremendous capacity of stainless steel to improve products or solve processing problems? In either case, you'll find extra values in Allegheny Metal that are natural outgrowths of pioneering and production leadership . . . extra qualities of uniformity, breadth of selection and technical cooperation that will make a real, dollar-and-cents difference to you. When you're thinking of stainless steel, think *first* of Allegheny Metal—call us in to research *for* you and work *with* you.

● Allegheny Metal is also handled—and carried in stock for prompt shipment—by all Ryerson Warehouses.

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STEEL CORPORATION · General Offices, Pittsburgh 22, Pa.

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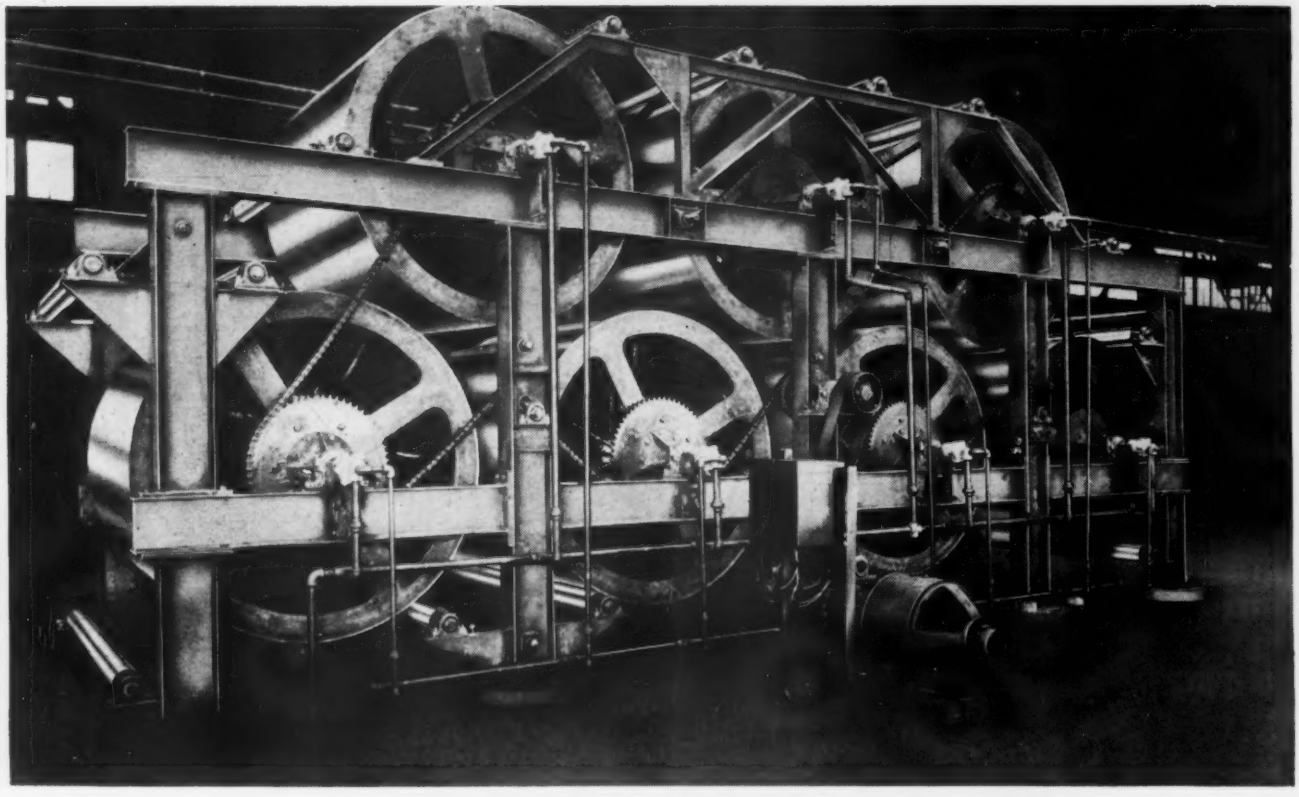
STAINLESS UNISTEL STEEL DRYERS



A good example of a Stainless Steel Jacketed Cylinder Back Dryer being given a shop test.

BEFORE SHIPMENT

Unistel can and cylinder dryers are (1) constructed in a shop that has always specialized in stainless steel fabrication. (2) They are built to A.S.M.E. unifired pressure code for 35 to 50 pounds steam working pressure. (3) They are erected in the shop and given a running test before shipment to you, thus assuring performance as per specifications.

When you buy Stainless Steel Cylinder Dryers of any type, you are investing in high priced equipment from which you expect a definite return for years. In order to realize your expectations, buy stainless steel quality.

A new machine for continuous dyeing, slashing, beaming of cotton yarns.

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A STATIC INHIBITOR: also gives excellent softness and lubrication. Used on mixtures, rayon and acetates. Can be applied as a spray on raw stock and staple fiber.

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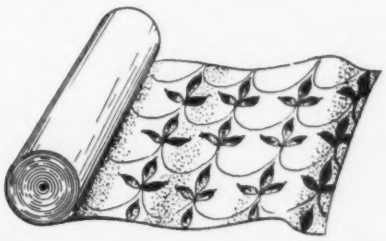
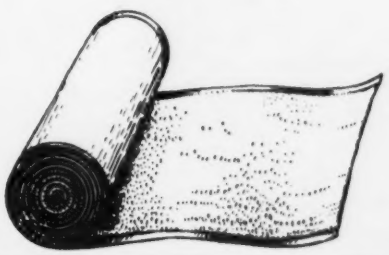


protect milk

wash rugs



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Wyandotte Kreelon is economically priced for quantity or small lot consumption.

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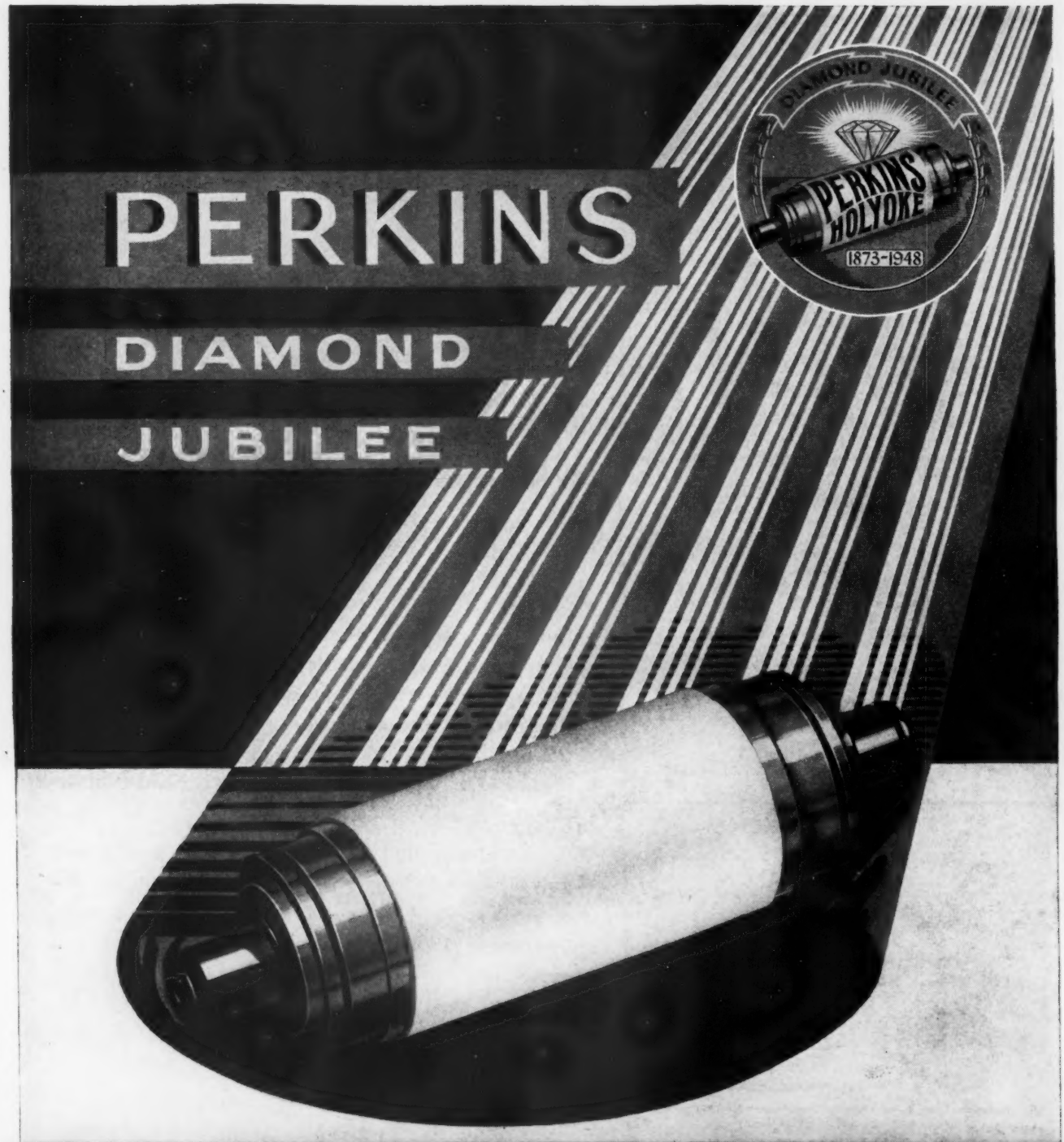

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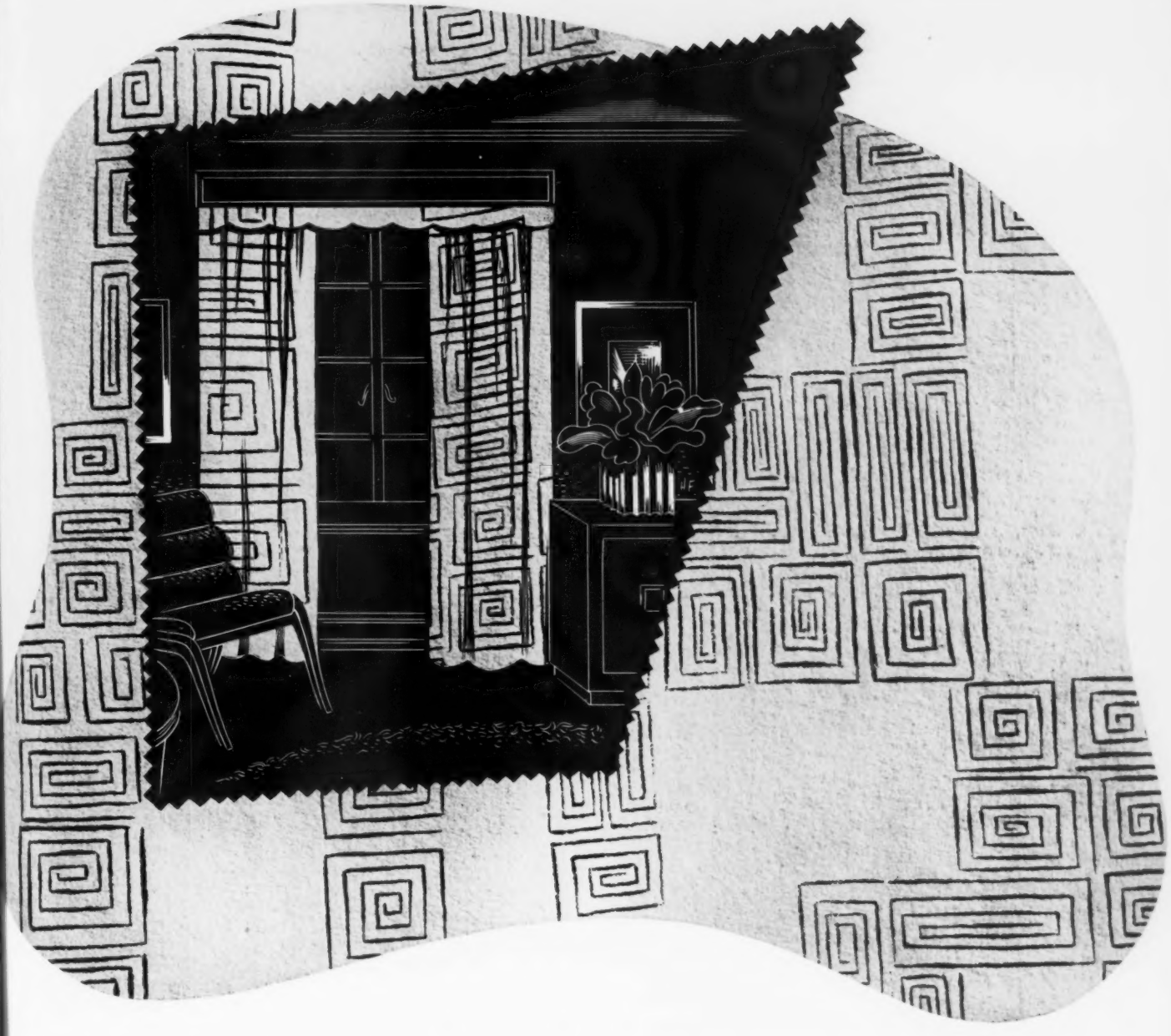


HOW WOULD YOU PRINT THIS PATTERN ON VELVET?

And how would you hold the soft, deep pile of the fabric and protect its hand?

To print this Shantung design by Vera for F. Schumacher and Company, Printex Corporation of America used the new, low-crock Aridye® Black FK, cut 1:5 with Aridye clear 6214-2.

By using an Aridye Pigment Color, Printex wisely avoided the risks and additional expense found in the ageing, steaming, soaping or other after-treatments that conventional dyes require.

The dyed fabric was merely screen printed, air dried and heat cured—a 1, 2, 3 process that was easier, quicker and safer and resulted in no impairment of the velvet's pile and hand.

This high-style, high-quality decorator fabric is an outstanding example of the reason why leading screen and roller printers use Aridye Pigment Colors for unusual as well as everyday printing jobs.

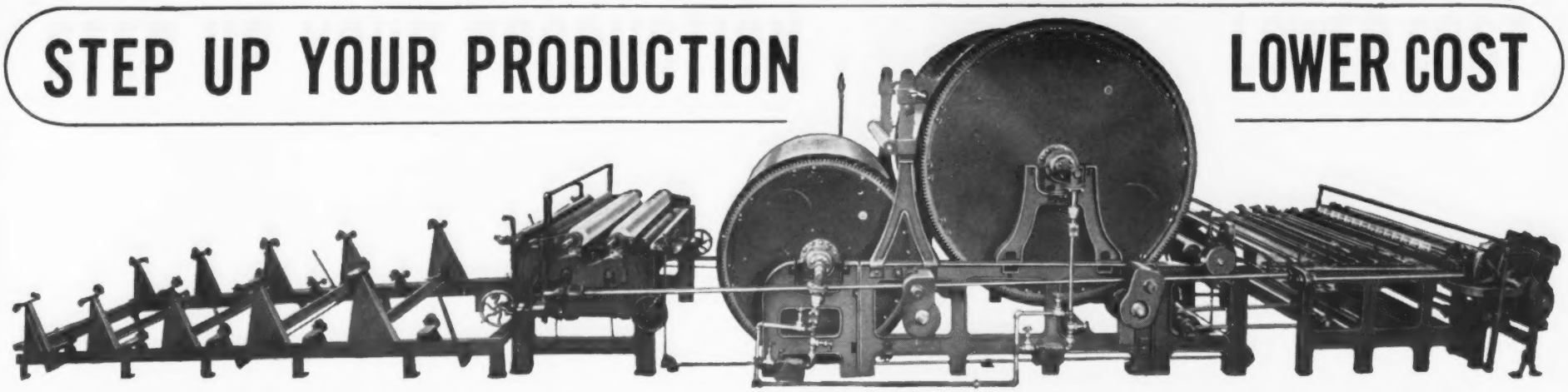
CHECK THESE EIGHT ADVANTAGES

Sharpness of Mark • Exceptional Fastness to Sunlight
Uniformity of Shade • Fastness to Washing • Economy
Bright Colors • Ease of Application • No Impairment of Hand

Aridye
Pigment Co

INTERCHEMICAL CORPORATION • TEXTILE COLORS DIVISION • FAIR LAWN, N. J. • ROCK HILL, S. C. • PROVIDENCE, R. I.

STEP UP YOUR PRODUCTION LOWER COST

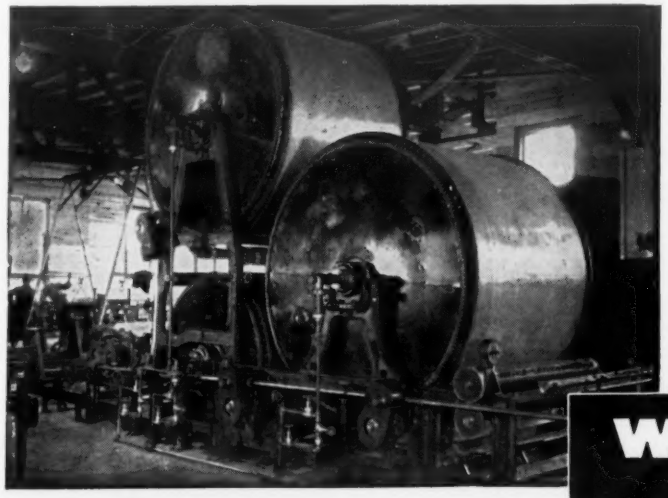


CREEL built with continuous steel side rails and heavy beam stands with adjustable ball-bearing beam journal supports . . . insures accurate constant alignment with cylinders.

HEAVY, RUGGED SIZE BOX with welded, stainless steel vat . . . extra deep bronze stuffing boxes . . . ball-bearing mounted size roll journals. Ball-bearing squeeze-roll lift eliminates strain . . . keeps rolls in perfect alignment with size rolls.

2 CYLINDER SLASHER equipped with heavy copper-covered 7′ and 5′ insulated cylinders, with bucket or syphon drains. All cylinder journals in heavy-duty, anti-friction bearings . . . positive drive (optional). Hood work . . . galvanized steel, copper or stainless steel . . . heavy-duty blower with individual motor drive.

HEAD END BALL BEARING EQUIPPED . . . including delivery and nip rolls . . . friction mounted in ball-bearing pillow blocks. Shafts of cone pulley drive mounted in anti-friction bearings.



3 CYLINDER SLASHER furnished with 5′ and 7′ cylinder and an extra 5′ or 7′ cylinder.

INSTALL A NEW IMPROVED SLASHER

From creel to head end, this Slasher includes the latest, mill-tested improvements that mean better sizing, increased production and lower operating costs.

Improved creel and size box, greater drying capacity, tension controls, positive and variable drives, anti-friction bearings, and other outstanding features assure fast, constant output of correctly sized yarn, free of excessive stretch.

The entire machine is designed and constructed for effortless, uninterrupted operation at maximum speed. Available in the following variable-speed drives:

Standard cone drive
Reeves motorized or with separate motor
Link-Belt P. I. V. motorized or with separate motor
Variable DC motors with AC generator set
DC Multi-Motor Drive generator set

Let us show you how our Slashing Machinery and methods can, in addition to increasing your Slasher room production, improve your Weave Room efficiency.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

When you can't afford a mistake

A narrow channel—a strong current—sharp rocks in your path—that's a combination that calls for skill and judgment. You just can't afford a mistake.

Skill and judgment—and the selection of the best working tools—also play a very important part in successful finishing operations. Bleachers and dyers know the problems that can arise with every batch of cloth—and they know *one way* to avoid them is to use the all-purpose de-sizing agent, Diastafor brand—Type L.

Diastafor—Type L can do a great deal to keep de-sizing trouble at a minimum. Because it can be used in a wide range of temperatures—and in a wide pH range—it gives you the flexibility you need for trouble-free operation. Even on the most difficult jobs, you can be confident that it will produce good results.

You'll find Diastafor—Type L is always dependable, easy to use, economical, under widely varying conditions. You get a fine finish and even, unshaded dyeing—whether you are working with cotton, rayons or mixed goods.

Good performance has made Diastafor the leader in its field for 40 years. Our sales and technical staffs are always at your service. Why not discuss your de-sizing needs with one of our representatives? Standard Brands Incorporated, *Diastafor Department*, 595 Madison Avenue, New York 22, New York.

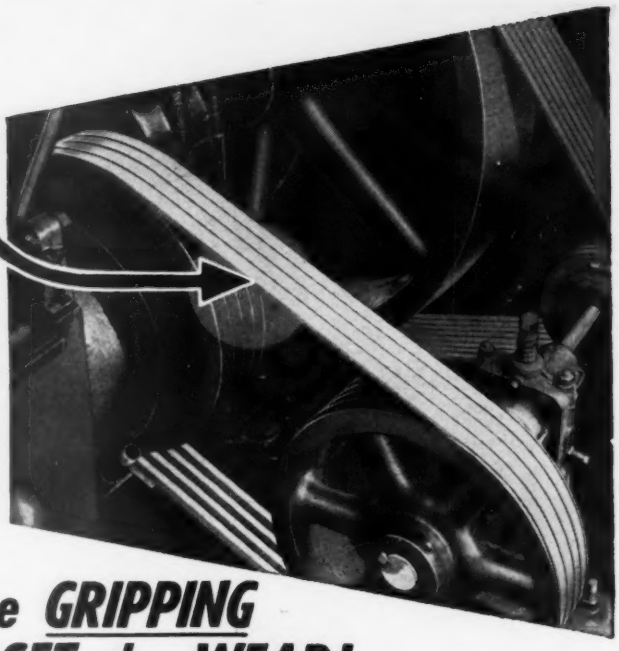
DIASTAFOR

A TRADE MARK OF STANDARD BRANDS INCORPORATED

THE SIDES of a V-BELT

Diagram of V-Belt in Sheave-Groove

Are ALL that TOUCH the Pulley



The SIDES Do ALL the GRIPPING Naturally — They GET the WEAR!

The moment you look at a V-Belt in its sheave, you see that the *sides* are the only part that ever *touch* the pulley. The *sides* do all the *gripping*—they get *all the wear* against the sheave groove wall. The sides *pick up* the load. They transmit that load to the belt as a whole. And then, once more, the sides—and the sides alone—take hold of the driven pulley and deliver the power to it.

That is why you have always noticed that the sidewall of the *ordinary* V-belt is the part that *wears out first.*

That's Why the CONCAVE SIDE

A GATES PATENT

Fig. 1

Straight Sided V-Belt

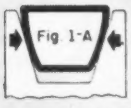
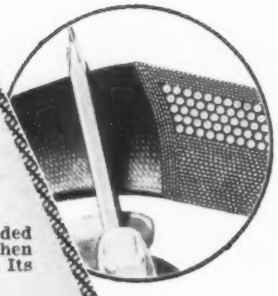


Fig. 1-A

How Straight Sided V-Belt Bulges When Bending Around Its Pulley



You can actually feel the bulging of a Straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Fig. 2

Gates V-Belt with Patented Concave Sidewall

Fig. 2-A

Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt is Bending Over Pulley.

No bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall — and that means much longer life for the belt!

Is IMPORTANT to You

Since the sidewall is the part that wears out first, anything that prolongs the life of the sidewall will naturally lengthen the life of the belt.

The simple diagrams on the left show exactly why the ordinary, straight-sided V-belt gets excessive wear along the *middle* of the sides. The diagrams show also why the Patented Concave Side greatly *lengthens the life* of the *sidewalls* of Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-belt can possibly give.

The Concave Side is Even MORE IMPORTANT Now that SUPER VULCO ROPES *Are Available!*

Now that Gates *SPECIALIZED* Research has resulted in Super Vulco Ropes capable of carrying much heavier loads—fully 40% higher horsepower ratings—the sidewall of the belt is called upon to do even more work in transmitting these heavier loads to the pulley. Naturally, with heavier loading on the sidewall, the life-prolonging Concave Side is more important now than ever before!

The Gates Rubber Company

"The World's Largest Makers of V-Belts"

DENVER, U. S. A.

483

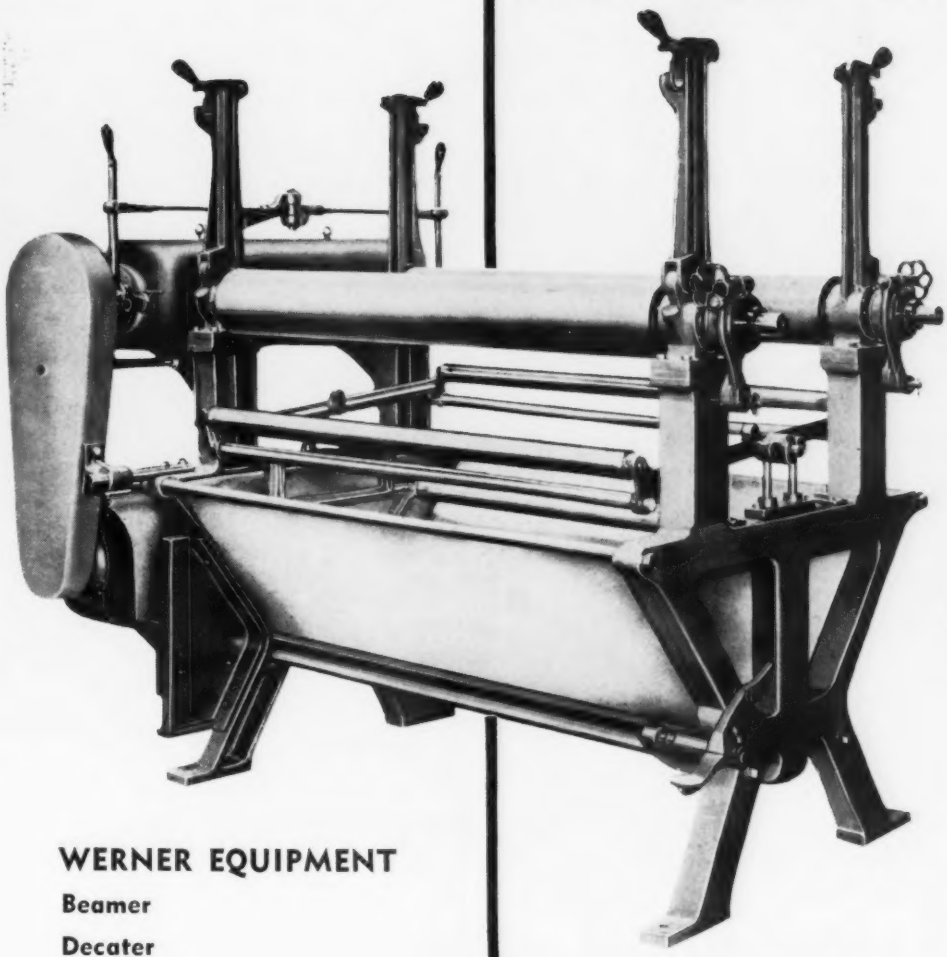
Gates

THE MARK OF SPECIALIZED RESEARCH

GATES VULCO ROPE DRIVES

Engineering Offices and Jobber Stocks **IN ALL INDUSTRIAL CENTERS** of the U. S. and 71 Foreign Countries

werner's jig



processess
all weights
and types
of fabrics
economically
and expertly

WERNER EQUIPMENT

- Beamer
- Decater
- Dry Cans
- Examining Machine
- Flock-Printing-Range
- Jig
- Open Width Boil-Off
- Padder (2 and 3 Roll)
- Palmer Tenter Quetch Range
- Pile Fabric Finishing Range
- Quetch
- Rubbing Machine
- Rope Washers
- Stainless Steel Dye Kettle
- Single-Color-Roller Print Machine
- Tuber
- Tenter Frame
- Vacuum Extractor

With ease and sureness, all weights and types of fabrics from heavy canvas ducks to sheers can be processed most economically and expertly by Werner's Jig.

The jig is of rugged, simple design and all controls are within easy reach of the operator. Care in the construction results in long trouble-free service. Fancy extras which confuse the operator and increase the initial cost, as well as maintenance cost, have been eliminated. It is possible, by means of simple beam roll brakes, to decrease or increase the tension to any degree required for the proper Jig processing of any fabric. A tilting expander with stainless steel rolls permits operation without crease marks.

Standard Werner Jigs are made in 50", 60" and 70" widths, heavy-duty Jigs 80", 90" and 100". Special width Jigs can be made up to 160".

The many features of Werner's Jig will pay you to investigate. For full details, write today.

WERNER MACHINE COMPANY INC.

Phone: Passaic 3-3110
PASSAIC, NEW JERSEY

—AND HERE'S ANOTHER "FIRST" BY DODGE!

Here is another Dodge development which simplifies and improves power transmission machinery... the Rolling Grip Clutch. Toggles are *eliminated* by employment of ball and wedge principle.

Heavy power-transmitting pressure on the friction disc is developed by a circle of hardened steel balls which are forced into a wedge-shaped groove by the sliding cam.

The "wedge" of cam and groove contours multiplies the force exerted on the shifter collar into a powerful force on the friction disc.

Engagement is easy and positive —smooth as a rolling ball. Great flexibility, ease of control and extreme ruggedness are provided in this modern, compact unit.

Available in Bolted Plate or Gear Tooth Plate series—in sizes from .38 H.P. to 21.2 H.P. at 100 R.P.M. Write for special bulletin, A282.

DODGE MANUFACTURING CORPORATION
Mishawaka, Indiana

ROLLING GRIP CLUTCH

DODGE

of Mishawaka, Ind.

CALL THE TRANSMISSIONEER

He is your local Dodge Distributor—factory trained—qualified to suggest ways to improve your machine performance, increase production. Look for his name under "Power Transmission Equipment" in your classified phone book.

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NAME PLATES

FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY, ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS

ALSIMAG roller or pulley type guides

TRADE MARK REGISTERED U.S. PATENT OFFICE

OFFER YOU } UNIFORM TENSION LONG LIFE

Guides like these usually involve four main problems:

a) exceptional guide WEAR
b) maintenance of UNIFORM TENSION
c) STATIC electricity
d) accurate control of DIRECTION

Alsimag 192 or Alsimag 193 custom made guides solve all these problems.

WEAR is controlled because Alsimag is a hard, homogeneous material. In almost every application we are told: "Alsimag guides give us far longer service than any other guide—and never chafe the yarn."

UNIFORM TENSION is one of the outstanding features of Alsimag. There is little variation in Alsimag guides, from day to day, from guide to guide, or from lot to lot. The material is homogeneous. Wear is very slow, simply reveals new surfaces of the same character as the original.

STATIC ELECTRICITY is frequently overcome by the use of Alsimag 193 guides, properly grounded. Alsimag 192 and Alsimag 193 are identical in physical characteristics except that 192 is a non-conductor, 193 is a conductor of electricity. Static is apt to be unusually difficult on roller guide applications (whether the guide is stationary or rotating) because the yarn normally operates under considerable tension and usually has a guide contact of 45 degrees or more. Static is usually emphasized in running monofilament or fine denier yarns. Static can be bled off through properly grounded Alsimag 193 guides.

DIRECTION of flow can be accurately controlled because Alsimag guides are custom made to your specific requirements. We will be glad to work with you to determine the design which will hold the yarn exactly where and as you want it and turn it in exactly the desired direction.

These designs are relatively simple. They are economical in manufacture. Test guides can be made to your specifications at reasonable cost.

46TH YEAR OF CERAMIC LEADERSHIP

AMERICAN LAVA CORPORATION

CHATTANOOGA 5, TENNESSEE

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FORECAST

Today . . . tomorrow . . . always

IDEAL PROCESSING WEATHER

The T

AMCO EVAPORATIVE COOLING AT PONEMAH IMPROVES YARN STRENGTH — AIDS SPINNING

Part and parcel of Ponemah's reputation for fine count cottons and rayons are the continuous efforts made to assure fabric superiority. An important recent step was the introduction of AMCO Evaporative Cooling.

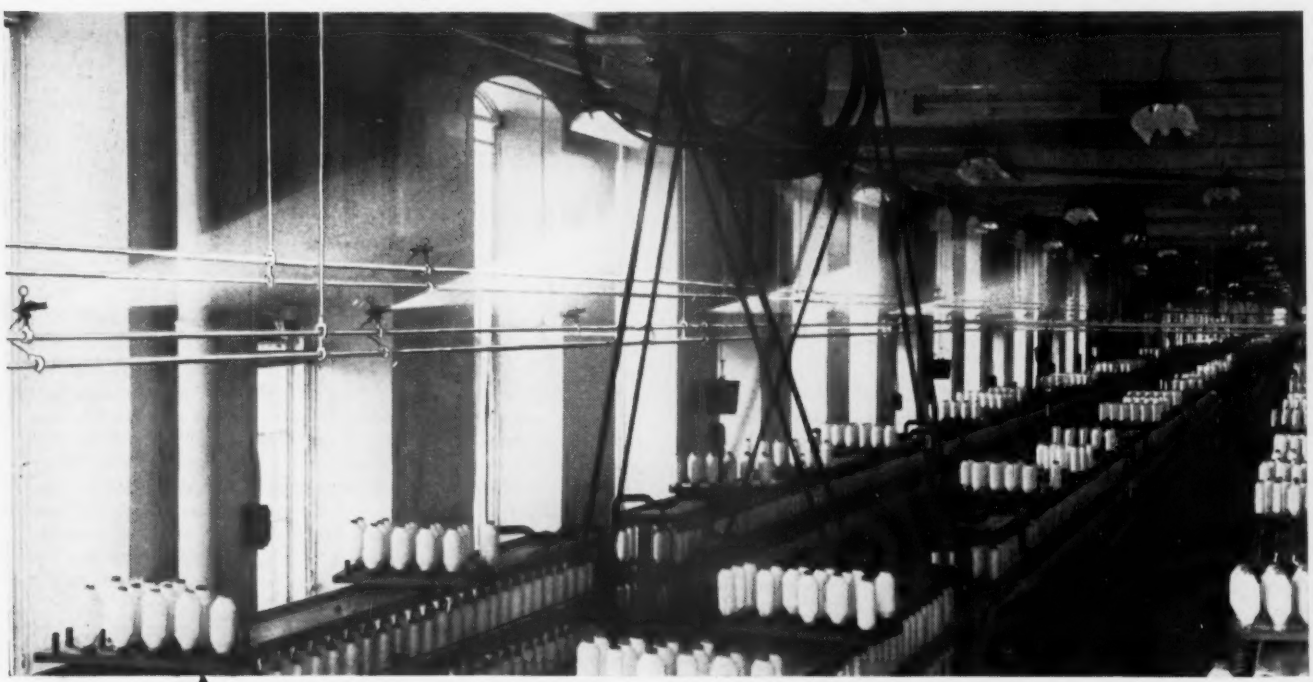
Ponemah already had humidification. The addition of AMCO Evaporative Cooling has proved a low-cost, practical way of meeting the excessive heat burden imposed by the spinning process. The results have been greater yarn strength, more efficient spinning, improved worker comfort.

AMCO Evaporative Cooling utilizes the humidification system to absorb the frictional heat of high speed machines in conjunction with carefully controlled airflow. No ducts or expensive alterations are needed. Installation can normally be made without serious interference with production.

Right now — see for yourself how quickly this system pays for itself with greater production, lower costs. An AMCO engineer will be glad to make a survey and submit recommendations for the exact system to meet the particular conditions and needs of your mill.

FEATURES OF AMCO HUMIDIFICATION AND COOLING

- ★ Reduces excessive temperature and holds relative humidity at point best suited to fibre and process.
- ★ Speeds production in high friction (heat) areas.
- ★ Assures evener yarn counts and increases breaking strength.
- ★ Gradually increases regain for good roving and consequent better spinning.
- ★ Drafting of fibres smoother and more compact.
- ★ Waste and fly greatly reduced.
- ★ No cumbersome ducts to require cleaning and obstruct light.
- ★ Easier to install — minimum disruption.
- ★ High flexibility to meet changing room conditions.
- ★ Minimum maintenance.
- ★ Amco Evaporative Cooling utilizes your present humidification system.
- ★ Increases worker comfort.



AMCO **HUMIDIFICATION and COOLING**

AMERICAN MOISTENING CO. AFFILIATED WITH GRINNELL COMPANY, INC. PROVIDENCE, R. I. · BOSTON · ATLANTA · CHARLOTTE

KEEP YOUR SHUTTLES IN STEP WITH YOUR *HIGH SPEED* LOOM REQUIREMENTS

Southern Shuttles

Have Designed, Engineered and Manufactured a Line of Shuttles that will take all the punishment you can give them...

They possess every Outstanding Requirement

Material —

Made of our tough, strong, durable Tempered Dogwood.

Shuttle Points —

Another innovation of Southern Engineers, which makes the hardened steel point and the Dogwood to which it becomes a part—one definite unit—no loosening—no coming out.

Outlet "U's"—or Bushings

Scientifically carburized and heat treated to give maximum flexibility and strength. Becomes a positive part of body of Shuttle.

Patented #108 Eye— Features

1. Streamlining for quicker threading.
2. Faster delivery of yarn to outlet.
3. Complete elimination of tying and looping.
4. Uniquely machined scroll which controls ballooning and tension.
5. Solid one-piece casting.

Bobbin Tip Side Clearance —

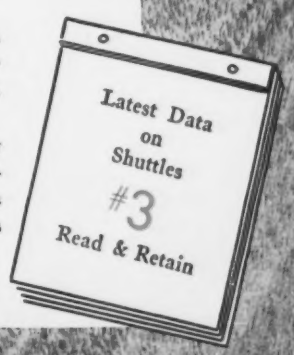
Prevents filling breakage caused by bobbin slap against shuttle wall.

High Speed Spring Assembly

Strong, flexible and durable. Specially heat treated—designed to withstand breakage.

Don't Use An *Ordinary* Shuttle On Your High Speed Looms—Use the One Specifically Designed by Shuttle Experts and Made to Withstand the Gaff. It is cheaper in the end.

Send for literature.

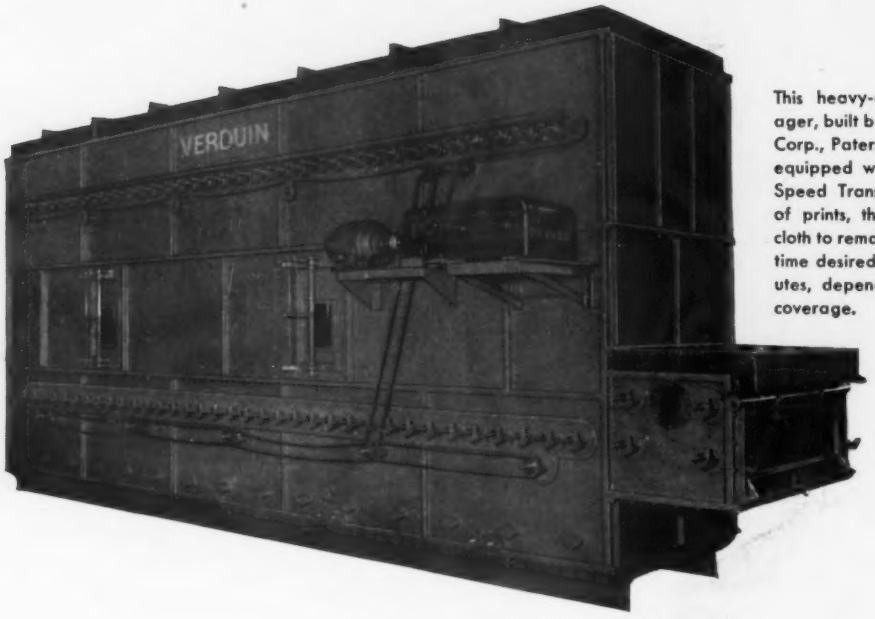


Southern Shuttles Division

(Specialists and exclusive manufacturers of the latest and finest in Shuttles)

STEEL HEDDLE MFG. CO.

621 E. McBee Ave. Greenville, S. C.



This heavy-duty vat piece-goods ager, built by John Verduin Machine Corp., Paterson, N. J., is standardly equipped with a REEVES Variable Speed Transmission. In developing of prints, the REEVES unit permits cloth to remain in ager any length of time desired, from two to eight minutes, depending on the amount of coverage.

Step up profits with REEVES Stepless Speed Control

Capitalize on the textile industry's proved method of improving quality, increasing production and reducing manufacturing cost. Assure faster, more profitable operation of your driven machines—under every changing condition—with instant, accurate REEVES Speed Control.

REEVES Variable Speed Drives provide infinite speed adjustability to compensate for differences in texture, weight or moisture content of cloth . . . and for variations in temperature, humidity or skill of operators.

Thousands of REEVES installations in textile mills have demonstrated their ability to solve problems in preparation, fabrication, spinning, twisting, finishing, dyeing, etc.

REEVES Speed Control is available in three basic units with a wide range of designs, sizes, capacities and speed ratios . . . with manual, completely automatic or electric remote control.

A REEVES engineer, widely experienced in textile mill applications, will be glad to work with you and recommend the REEVES units which best meet your needs. For complete information on the entire REEVES line, send today for the recently published 114-page catalog W-450A.

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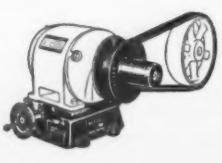
Recognized Leader in the Specialized Field of Speed Control Engineering

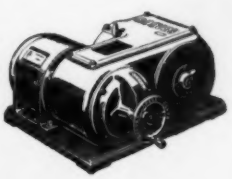
THE THREE BASIC REEVES SPEED CONTROL UNITS

VARIABLE SPEED TRANSMISSION for providing infinite, accurate speed flexibility over a wide range—2:1 to 16:1. Sizes—fractional to 87 hp.

VARI-SPEED MOTOR PULLEY provides an instantly variable speed drive within 4:1 ratio for any constant speed motor. Sizes to 15 hp.



MOTODRIVE combines motor, speed varying mechanism and reduction gears in single compact unit. Speed variations 2:1 to 6:1 inclusive. Sizes to 15 hp.



Accurate Variable
REEVES Speed Control
Gives the Right Speed for Every Job!

FINE NEEDLES

ARE ESSENTIAL TO

FINE KNITTING

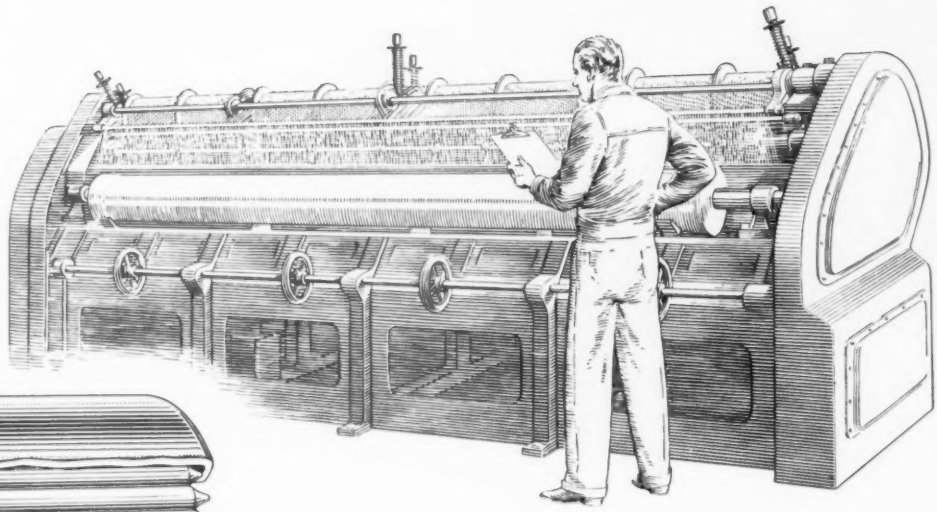
THE TORRINGTON COMPANY
Torrington, Conn., U. S. A. Est. 1866
Branches: New York, Philadelphia, Chicago, Greensboro, N. C., Boston, St. Louis, Toronto, Canada. *Pacific Coast Representative:* E. G. Paules, 1762 West Vernon Ave., Los Angeles 37, Calif. *In England:* Broadgate House, 7-10, Eldon Street, London E.C.2

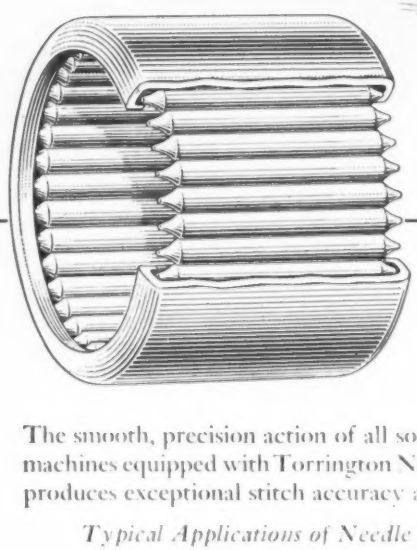
There's a **TORRINGTON** *Needle for every type of Knitting!*

More Uniform Knitting at Higher Speeds

Aided by Torrington Needle Bearings

Torrington Needle Bearings contribute to improved operation of all types of Knitting Machines, Warp (illustrated) and Circular, as well as others common to the Knitting Field.





...efficient lubrication is another advantage of these compact, high-capacity anti-friction units

The smooth, precision action of all sorts of knitting machines equipped with Torrington Needle Bearings produces exceptional stitch accuracy at high speeds.

Typical Applications of Needle Bearings in Various Forms of Knitting Machinery

Pattern wheel drive
Pattern cam and rollers
Yarn feed brake mechanism
Cam shafts
Cam followers
Take-up reels
Yarn feed shaft
Needle bar links
Beam shafts
Idler gears
Guide bar pusher rod
Drum shaft
Cylinder drive shaft
Cylinder support roller
Cloth roller support
Idler pulley hub and Belt pulley shaft
Sinker bar assembly
Cast-off bar

Reduced wear of vital moving parts means less need for adjustments and cam redressing. Greater lubricating efficiency allows longer continuous operating periods before relubrication is required.

To gain these advantages in the textile machinery you design, build or rebuild, call on the specialized experience of Torrington engineers ...and look for Torrington Needle Bearings in the equipment you buy.

THE TORRINGTON COMPANY

Torrington, Conn. • South Bend 21, Ind.

District Offices and Distributors in Principal Cities

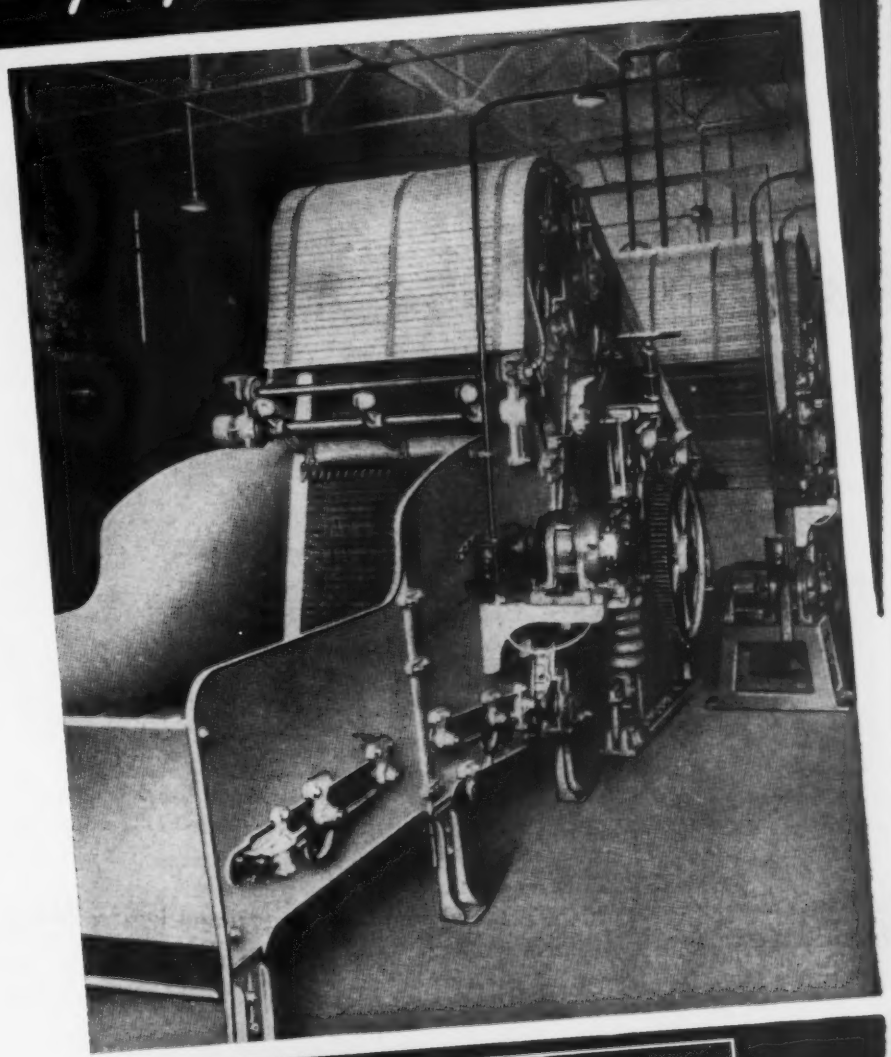
TORRINGTON BEARINGS

NEEDLE
SPHERICAL ROLLER
STRAIGHT ROLLER
TAPERED ROLLER
BALL
NEEDLE ROLLERS

SARGENT'S

CONTINUOUS — AUTOMATIC EXTRACTING MACHINE

Reduces drying costs to a minimum



TODAY'S MODERN EFFICIENT METHOD

The SARGENT "CONTINUOUS" EXTRACTING SYSTEM *is saving thousands of dollars for many woolen, worsted and cotton mills. It employs an Automatic Feeder, the Extracting or Squeeze Roll Machine, and a Stock Dryer. This method of removing surplus dye, bleach, or scouring liquor from wool, staple rayon fibres, shoddy, mixed fibres, cotton and cotton linters, before drying, offers many distinct advantages,*

- One-man operation, with capacity up to 2,500 pounds per hour.
- Machines made in five widths for varying plant requirements.
- Even and continuous flow of material into and through the dryer.
- Uniform drying results—Savings in power—savings from continuous action—savings in labor, with ease of operation.
- Greater speed of operation, with least danger hazard.
- Stock is better conditioned, containing fewer "bunches." Eliminates most of the usual matted condition of stock coming from a hydro-extractor.
- Pneumatic load lift, with pressure control. Approximately 10 tons pressure between rolls.
- Direct motor drive. Spherical roller bearings on the squeeze rolls.
- Rugged construction. Trouble-free operation.

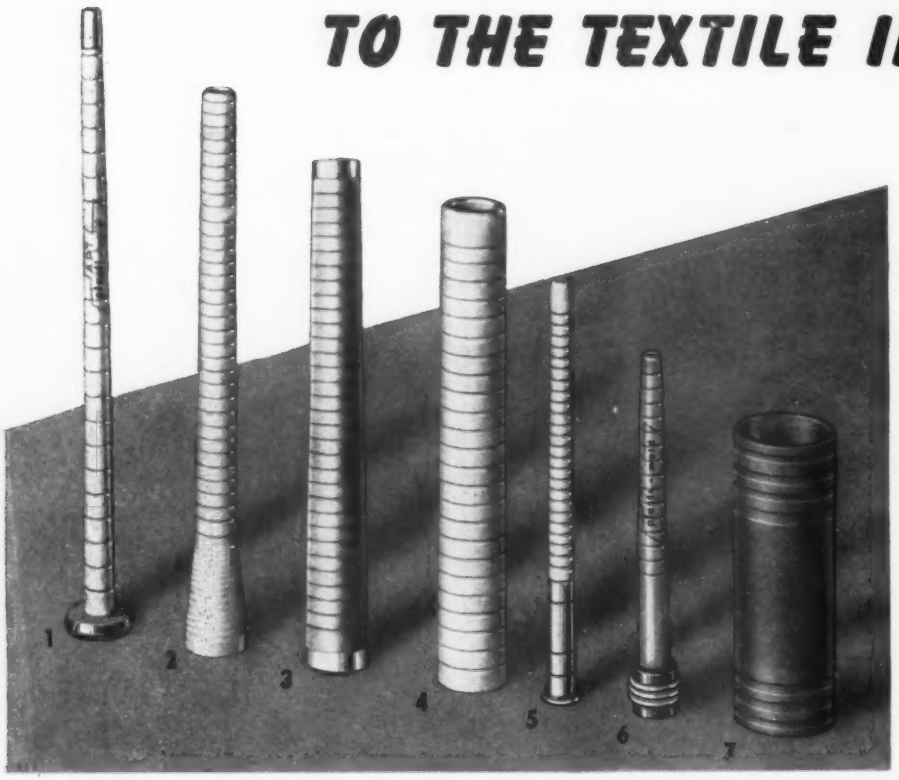
Detail of the Pneumatic Load Lift

C. G. SARGENT'S SONS CORPORATION

GRANITEVILLE, MASSACHUSETTS, U.S.A.

An A-P-T- Anniversary in 1948!

50 YEARS OF SERVICE TO THE TEXTILE INDUSTRY



1 Giant Package Wool Mule Spinning

2 Wool Ring Spinning

3 Large Package High Speed Cotton Warp Spinning

4 Worsted Ring Spinning

5 For C & K S-3 Looms for Silk and Rayon

6 For Automatic Bobbin Changing Looms

7 For Headless Package Rayon Spinning

Plus a wide range of tapered tubes and cops for spinning, twisting and weaving of all fibres.

A record of 50 years in business is just cause for pride in itself. However, our greatest pride is in the fact that during that time we have made important contributions to the success of the textile industry, which, in the United States today, ranks first in number of employees, first in number of motors used, third in value of products, and fourth in value added by manufacture.

Most A.P.T. products have been definite milestones in textile progress, as illustrated herewith. They were pioneered by us and for the most part still have no counterparts in competition. We have not only kept pace with the technological developments but have frequently anticipated the needs of the textile industry.

Our reward, aside from great satisfaction, has been the fact that we continue to do business with many of the same customers year after year and to constantly add new ones.

Let A.P.T. Yarn Carriers improve the quality of your production and reduce costs. They are adaptable to the spinning, twisting and weaving of all types of fibres.

AMERICAN PAPER TUBE COMPANY

ESTABLISHED 1898

WOONSOCKET, R. I. GREENVILLE, S. C.

CANADIAN REPRESENTATIVE: HUGH WILLIAMS & CO., TORONTO, CANADA

are you getting ALL 7 advantages from the slow-speed drives you use?

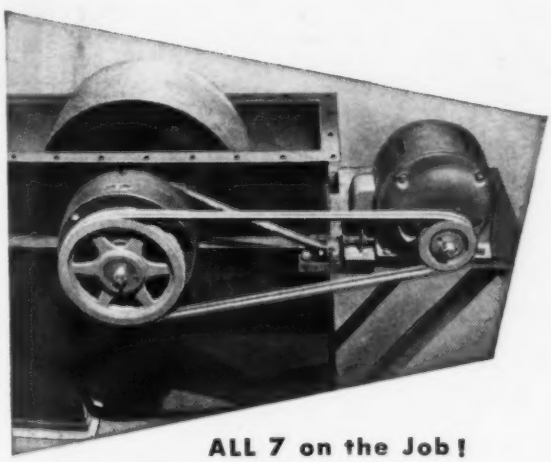
	DRIVE "A"	AMERICAN REDUCTION DRIVE	DRIVE "C"
1. Fast, Flexible Speed Changes	?	✓	?
2. Simple Installation	?	✓	?
3. Twice-a-year Attention	?	✓	?
4. No Supports, No Foundations	?	✓	?
5. Space-Saving Design	?	✓	?
6. Weight-Saving Construction	?	✓	?
7. Maximum Efficiency	?	✓	?

for lower operating costs— CHECK ALL 7 !

Only American Reduction Drives give you *all* the advantages you need to reduce slow-speed equipment operating costs! You get fast, easy speed changes—by simply substituting sheaves of different diameters. You can get any driven speed below 154 r.p.m. with standard stock parts. You save installation time and money—the Speed Reduction Unit mounts right on the shaft of the driven machine. No special engineering, no costly foundations or supports are needed. Patented compact design gives you extra floor space. Best of all, you increase equipment life because the primary belt drive cushions equipment-damaging shock loads. Semi-annual lubrication of the unit is all that is required.

For lower operating costs, check all 7 *first!* Write for the complete installation and specification details in the American Reduction Drives Handbook, today.

NOW...Get Immediate Delivery...See your American Drives Distributor



ALL 7 on the Job!

American Reduction Drive operating grain elevator. User says: "No lubrication problem to worry about—installation a matter of minutes."*

*Name on request.

The American Pulley Company

4286 WISSAHICKON AVE. • PHILADELPHIA 29, PA.

MISCO *Stainless Steel* CASTINGS

MISCO specializes in Stainless Steel Castings. We make all grades including hard-enable types as well as austenitic varieties such as 18-8 in its several modifications.

We will supply best quality Stainless Steel Castings in the rough, or finished to a high degree of accuracy. If your requirements call for large quantities of small parts, MISCO offers the latest developments in Precision Castings made to micrometer tolerances, which practically eliminate machine work.

With twenty-seven years' experience in making Stainless Steel Castings we will give you prompt and dependable service. Large and medium weight Stainless Steel Castings—Small Precision Castings—Centrifugal Castings. We have excellent facilities to serve you. Let us know your needs.

ALLOY CASTING DIVISION
Michigan Steel Casting Company

MISCO
Heat and Corrosion Resistant Alloys

One of the World's Pioneer Producers and Distributors of Heat and Corrosion Resisting Alloys

1996 GUOIN STREET • DETROIT 7, MICHIGAN

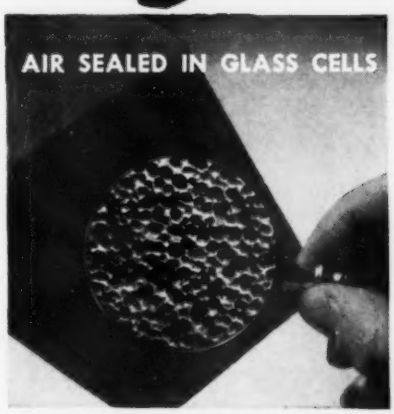
The only material of its kind!

PC FOAMGLAS INSULATION

PC Foamglas is not a fiber, not a wool, not a board, not a batt. Foamglas is cellular glass, in the form of big, lightweight blocks, each composed of millions of minute, air-filled glass cells. And as such, Foamglas has excellent insulating properties. On roofs and ceilings, in walls and floors, PC Foamglas is helping to maintain required temperature levels, to minimize condensation and to withstand humidity in buildings from Canada to Mexico.

When installed according to our specifications for recommended applications, PC Foamglas retains its original insulating efficiency permanently. It is highly resistant to moisture, fumes, vapor and acid atmosphere — elements that frequently impair the insulating value of other materials.

We shall be glad to talk over your insulating problems, to find out where and how PC Foamglas can best meet your requirements. Also we have recently published booklets that contain valuable information. Mail the coupon and we'll gladly send you free copies. Pittsburgh Corning Corporation also makes PC Glass Blocks.



THE MAGNIFIED CROSS SECTION of PC Foamglas shows its cellular structure . . . glass bubbles solidified into strong, rigid blocks. In the millions of cells of glass-enclosed air, lies the secret of its insulating value.

Pittsburgh Corning Corporation
Room 428-8, 632 Duquesne Way
Pittsburgh 22, Pa.

Please send me without obligation, your FREE booklets on the use of PC Foamglas insulation for:

Roofs_____ Walls_____ Floors_____

Name_____

Address_____

City_____ State_____

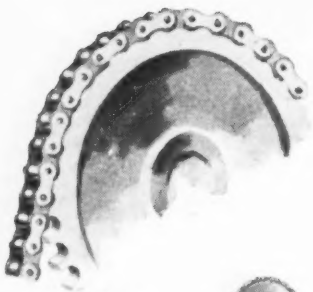
When you insulate with FOAMGLAS . . . you insulate for good

PITTSBURGH ® PC CORNING **FOAMGLAS INSULATION**

FOR ADDITIONAL INFORMATION SEE OUR INSERTS IN SWEET'S CATALOGS

FOR GREATEST EFFICIENCY IN SMALLEST SPACE

. . . rely on Roller Chain!



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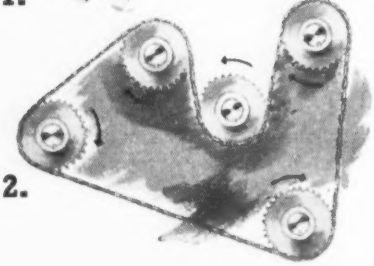

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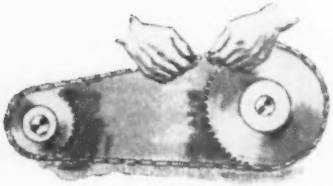

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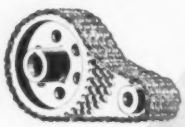


YOU'LL get greatest efficiency . . . sustained efficiency . . . in the smallest overall space with a roller chain drive. For only roller chain gives you all these advantages:

1. *Positive transmission of power.* Since roller chain depends on positive contact with sprocket teeth . . . does not rely on tension . . . it does not slip and waste power. Speeds can be fast or slow . . . roller chain is equally efficient at both throughout its working life. It accurately times machine operations.

2. *Transmit more horsepower in less space.* The width of a chain drive is relatively narrow compared to other types of drives, *regardless of load conditions.* It requires only minimum wrap around sprockets . . . can drive multiple shafts from a single power source. On large reduction drives, roller chain will operate over smaller wheels than drives dependent on tension, since they need less arc of contact for effective operation. Center distances can be varied as desired, assuring the most effective use of your space.

3. *Easily installed.* Just mount the sprockets on the shafts, wrap the chain around the sprocket and couple the chain. That's all there is to it. There's no need to move or remove the shafts.

AND, in addition, roller chain drives last longer because load is distributed over many sprocket teeth. They require fewer adjustments, impose less load on shafts and bearings and absorb damaging shocks.

For all the facts on roller chains and how they can help you, see your Baldwin-Rex Man, or write direct to Baldwin-Duckworth Division of Chain Belt Company, 346 Plainfield Street, Springfield 2, Mass.

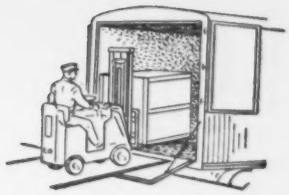
BALDWIN·REX

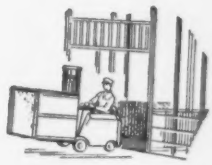
ROLLER CHAINS

BALDWIN-DUCKWORTH DIVISION OF CHAIN BELT COMPANY

You Need MH* to SAVE TIME!

*M H is MASS HANDLING —the systematic movement of the most units, in the shortest time, at the lowest cost.





FREE. Send for your copy of the "Towmotor Materials Handling Analysis Guide"—it shows you how to analyze and improve handling operations in your plant.

TOWMOTOR CORPORATION, DIVISION , 1226 EAST 152ND STREET, CLEVELAND 10, OHIO

REPRESENTATIVES IN PRINCIPAL CITIES

TOWMOTOR

THE ONE-MAN-GANG

Fork Lift Trucks *and* Tractors

WHY BUILD A NEW PLANT when you can modernize your present handling methods and streamline production operations with Towmotor Mass Handling? Towmotor Fork Lift Trucks, Tractors and Accessories will insure the most efficient use of present production equipment, manpower and space. Learn now how a versatile Towmotor can save time by speeding up handling operations in your plant.

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

LOOMS • CARDS • PRINTING PRESSES

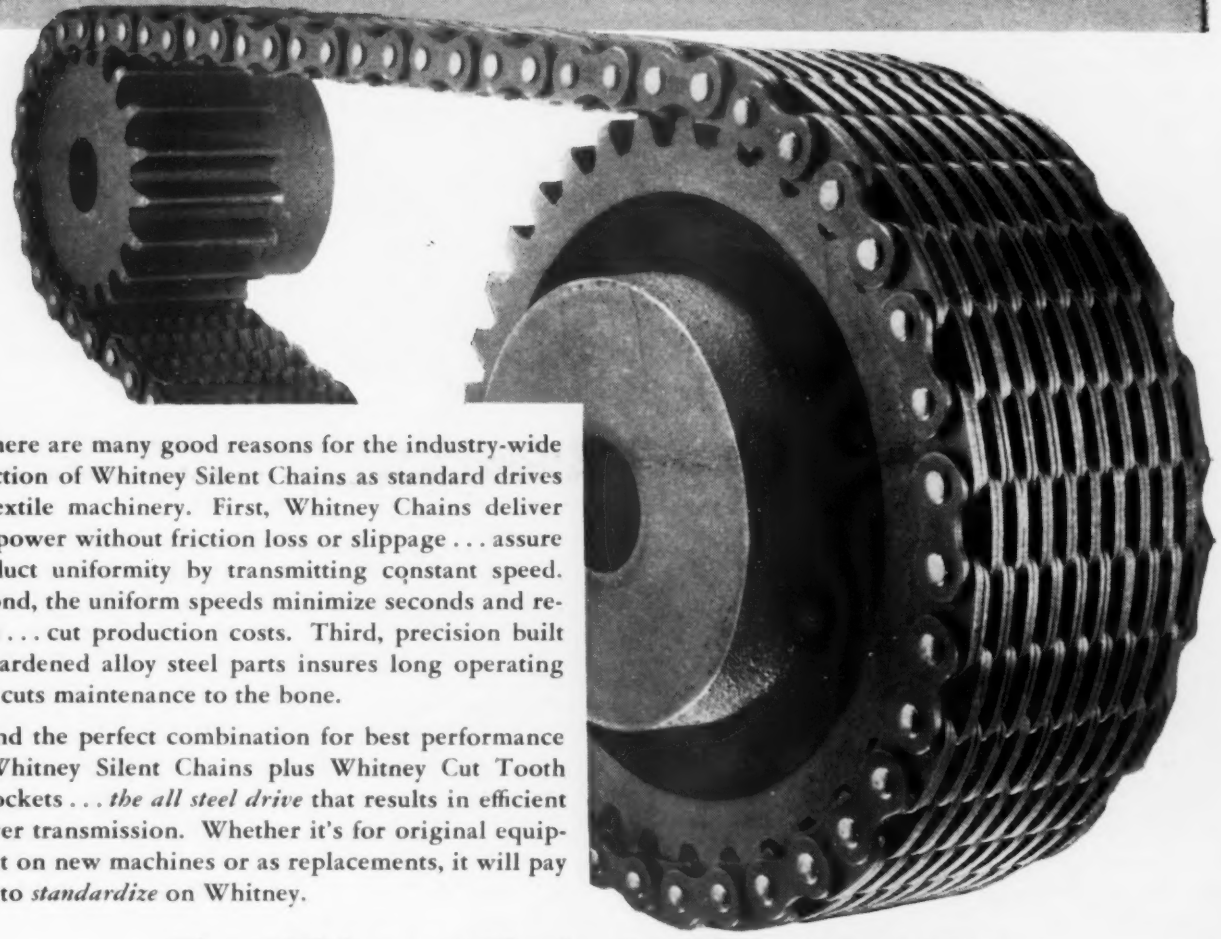
WHITNEY
SILENT CHAIN DRIVES
Assure Uniform Performance
In Them All

DRYERS

NAPPERS

HOSIERY MACHINES • SPREADERS • KNITTERS

SLASHERS • WEAVERS • SPINNING FRAMES



There are many good reasons for the industry-wide selection of Whitney Silent Chains as standard drives in textile machinery. First, Whitney Chains deliver full power without friction loss or slippage . . . assure product uniformity by transmitting constant speed. Second, the uniform speeds minimize seconds and rejects . . . cut production costs. Third, precision built of hardened alloy steel parts insures long operating life, cuts maintenance to the bone.

And the perfect combination for best performance is Whitney Silent Chains plus Whitney Cut Tooth Sprockets . . . *the all steel drive* that results in efficient power transmission. Whether it's for original equipment on new machines or as replacements, it will pay you to *standardize* on Whitney.

The Whitney Chain & Mfg. Company
211 HAMILTON STREET, HARTFORD 2, CONNECTICUT

He Took One Look at Our 1932 Ambulance

It was an exciting day in our town when Dr. Adams took off his khaki and went back to work at the Hospital.

He took one look at our 1932 ambulance and ordered a new one. It was easy to see that we needed a new ambulance, but where was the money to come from?

At the Hospital Board meeting that night, we asked Dr. Adams for his suggestions.

"A friend of mine," he said, "will give you $5,300 for a new ambulance—on one condition. Starting now you are to set aside each year in a separate fund 20% of the cost of a new ambulance."

That "deal" started a new trend of thinking on our Hospital Board.

That was three years ago . . . and today the cash in our ambulance fund is 60% of the cost of a new ambulance. And no one has ever suggested that we use the ambulance fund for any other purpose.

Take a look at your last Financial Statement: Do you really have the money that you charged off for Depreciation in past years? Is it part of your "current" assets . . . or is it earmarked as a separate fund under "fixed" assets?

Write today on your business stationery for your copy of "Good Housekeeping in Business" —a pamphlet which presents what we believe to be a *logical* basis for handling depreciation money. We will be glad to send it to you.

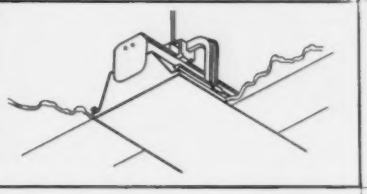
TEXTILE MACHINE WORKS
READING, PENNA.

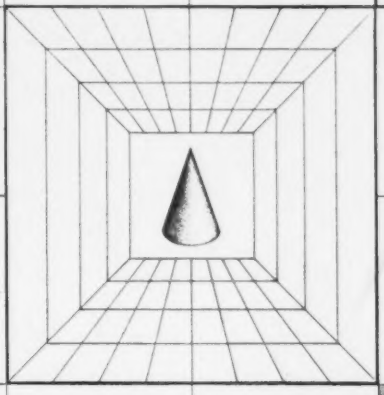
Sure it steals your heart away . . . For it's the sheer, clear beauty of flawless full-fashioned stockings that keeps the lassies smiling. Full-fashioned stocking manufacturers choose TMW "Fixture Drawn"* Needles to assure these finer qualities in full-fashioned knitting. This special TMW patented process holds the needles straight and true. Let us put your needle bars in shape for faster, more accurate, more profitable knitting.

* Reg. U. S. Pat. Off.

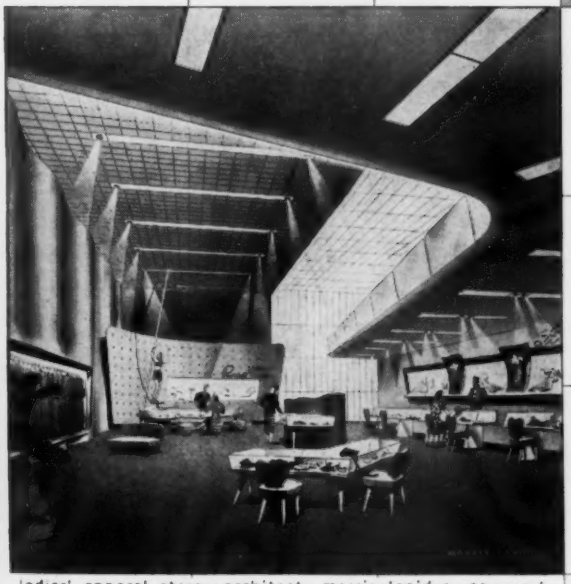
TEXTILE MACHINE WORKS • READING, PA.

light . . . with versatility of installation offering CEILINGS UNLIMITED*





Installation simplified by Miller Ceiling Furring Hanger (patented). Continuous wireway cuts wiring, fitting costs. Units Bonderized, resist rust. Accessible parts—easy service.



ladies' apparel store—architect morris lapidus, new york

Miller Fluorescent Troffer Lighting Systems not only give good light—they make lighting an integral part of the architecture They can be installed in stores, schools, offices, factories to form ceiling patterns desired . . CEILINGS UNLIMITED

Miller Lighting Service is all-inclusive. It covers the needs of Planned Lighting.

Miller 50 and 100 Foot Candlers (Continuous Wireway Fluorescent Lighting Systems) have been established as standard for general factory lighting. And Miller incandescent and mercury vapor reflector equipment has broad factory and commercial application.

Miller field engineers and distributors, conveniently located, are at your call

*Trade Mark

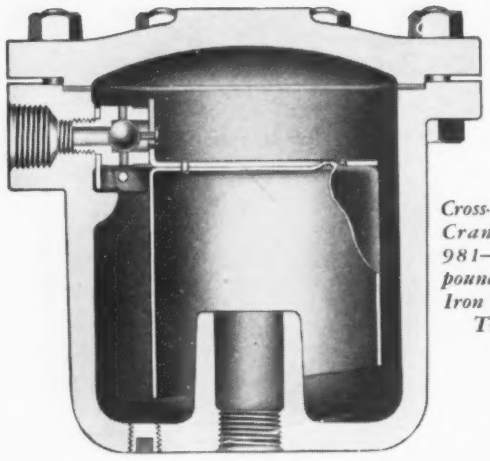
Chermayeff

THE miller COMPANY
SINCE 1884
ILLUMINATING DIVISION, MERIDEN, CONNECTICUT

ILLUMINATING DIVISION: Fluorescent, Incandescent, Mercury Lighting Equipment; HEATING PRODUCTS DIVISION: Domestic Oil Burners and Liquid Fuel Devices; ROLLING MILL DIVISION: Phosphor Bronze and Brass in Sheets, Strips and Rolls

2

A Steam Trap With Only One Moving Part



Cross-section Crane No. 981—150-pound Cast Iron Steam Trap

Float Actuating the Disc through Simple Lever is Only Moving Part

Extremely simplified and compact design with unusually high discharge capacity. Assures efficient drainage of all steam piping and steam heated equipment. Saves fuel . . . keeps steam hot and dry. Works automatically . . . requires practically no maintenance. Extra strong and wear-resisting construction throughout. Easy to install and service.

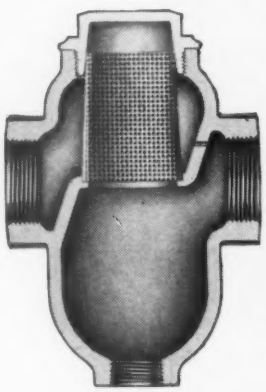
WORKING PRESSURES AND SIZES: 1 to 150 pounds saturated steam, in ½-in. size only—1 to 200 pounds, from ½ to 1-inch incl.—50 to 300 pounds, in ¾ and 1-in. sizes. See your Crane Catalog, or

WRITE FOR DESCRIPTIVE BULLETIN AD-1610

How Much Is Dirt in Pipelines Costing You?

. . . Stop this 2-way waste with CRANE SEDIMENT SEPARATORS

The cutting action of dirt and scale in any pipeline is a menace to valve and trap life. In lines to automatic machines, foreign matter may be the cause of frequent shutdowns, or of high product spoilage.

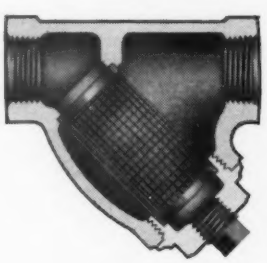


Cross-Section Standard Type

WORK AUTOMATICALLY —EASY TO SERVICE

Crane Sediment Separators automatically trap and remove all dirt from pipelines. Extra large screening areas assure free fluid flow and minimum pressure loss. Only periodic emptying of sediment pocket is required. Crane design permits easy cleaning out and replacement of screen.

Cross-Section Y-Pattern



FOR HIGH OR LOW WORKING PRESSURES

A wide range of sizes in several types in iron and steel, with screwed or flanged ends, assures a Crane separator for most needs. All types supplied with screen of mesh and material best suited for service specified. See your Crane Catalog or

WRITE FOR DESCRIPTIVE BULLETIN AD-1638

CRANE CO., *General Offices,* 836 South Michigan Avenue, Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

EVERYTHING FROM . . .

VALVES
FITTINGS
PIPE

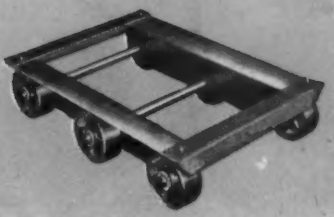
CRANE

PLUMBING
AND
HEATING

FOR EVERY PIPING SYSTEM

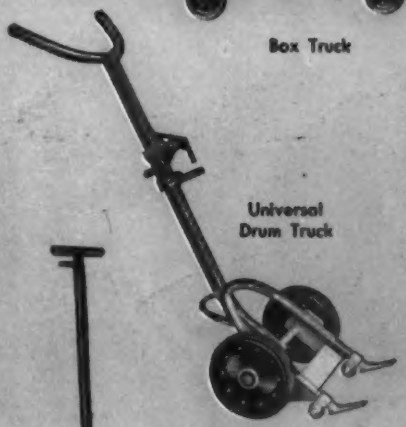
Trucks that SAVE { TIME, MONEY, EFFORT

Box Truck



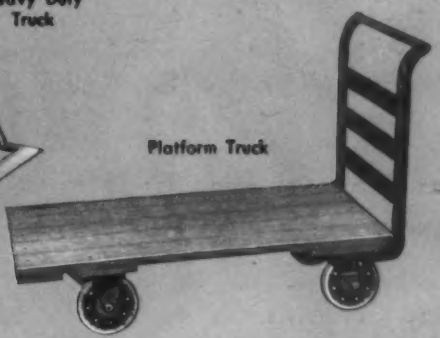
Steel Dolly

The "Up-Ender" —upends barrels and drums



Universal Drum Truck

Heavy Duty Truck



Platform Truck

The Lift-Jack

Wood or Steel Skids

. . . and every one a *Long Life*

Colson

NEED CASTERS?

Colson produces sizes and types for every purpose. Thread guards are available for many models.

Yes, textile manufacturers can look to Colson for trucks that—

SAVE TIME by streamlining the flow of goods from raw materials to finished products—

SAVE MONEY by cutting handling costs—

SAVE EFFORT by handling heavy loads easily and safely.

The trucks shown here are only a few of the many dependable COLSON models—all designed to meet the requirements of the textile industry. Write for detailed information.

THE COLSON CORPORATION

ELYRIA, OHIO

CASTERS • INDUSTRIAL TRUCKS AND PLATFORMS • LIFT JACK SYSTEMS • BICYCLES • CHILDREN'S VEHICLES
WHEEL CHAIRS • WHEEL STRETCHERS • INHALATORS • TRAY TRUCKS • DISH TRUCKS • INSTRUMENT TABLES

Basic principles of lubrication govern the performance of sleeve bearings. Proper application of those principles and the innate quality of Bunting Bronze Bearings give assurance of successful operation in service. The wide experience of our engineers is at your disposal. THE BUNTING BRASS & BRONZE COMPANY, Toledo 9, Ohio. Branches in Principal Cities.
BRONZE BEARINGS
PRECISION BRONZE BARS
BUSHINGS
64
Bunting

Pails that sail through CONTAMINATION PROBLEMS

SAFETY FOR SENSITIVE PRODUCTS: Rustproof and corrosion-resistant, these long-lasting Inconel pails assure top protection against metallic contamination. Made and stocked in 12-14-16-20 quart sizes.

Ordinary pails? Not by a long shot!

They're in a class by themselves.

They stay bright and clean. They stay smooth and sturdy. They put an end to metallic contamination of dyes, sizing and bleaches. And they'll be on the job long after ordinary pails have hit the scrap heap.

Why?

Because they're made of solid Inconel*. This Nickel Chromium Alloy is especially suitable for acid dyeing as well as for the application of diazotized and developed colors and sulfur colors. It resists corrosion by dilute hypochlorites, sizing or other compounds and solutions used to impregnate fabrics.

Easy to clean and keep clean, Inconel—like all high Nickel Alloys—can never rust. It's the same all the way through. There's no coating to chip or crack, nothing to wear away. And it has the strength and toughness to take plenty of slamming around.

Durable, all-welded Inconel pails are made by the ALLCRAFT MANUFACTURING COMPANY, INC. Because of their long life, ALLCRAFT Inconel pails are the most economical you can buy; the protection they afford against metallic contamination makes them the safest you can use.

*Reg. U. S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

INCONEL
...80 NICKEL — 14 CHROMIUM

FOR FURTHER INFORMATION — MAIL COUPON

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.
Please tell me where I can obtain ALLCRAFT *Inconel pails.*

Name.....

Company.....*Title*.....

Address.....

City.....*Zone*.....*State*.....

T.W.-3-48

HYCAR AMERICAN RUBBER LATEX...

a new material for impregnating and coating fabrics, fibres, and threads

HYCAR latex, when used as a coating or impregnant for even inexpensive materials, imparts many desirable properties not easily obtained with other coatings and impregnants.

For example, high resistance to oils, chemicals, abrasion, and flexing—to name a few—are added in very desirable degrees by HYCAR latex, used as an impregnant or a coating. And HYCAR-impregnated materials may then be coated with any one of a number of other materials to impart additional properties.

All of this can be done, safely and simply, with HYCAR latex, because it's an inherently easy and safe material to handle. No vulcanization is required. Normal drying times are used. No explosive solvents need be handled. Nor is there any need for cumbersome and costly solvent recovery systems.

We would be glad to work with you on any problems relating to the use of HYCAR American rubber latex. For more information write Dept. HL-2, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio.

Hycar
Reg. U.S. Pat. Off.
American Rubber

B. F. Goodrich Chemical Company
A DIVISION OF THE B. F. GOODRICH COMPANY

better WEAVING through research

Scott Single-Strand Tester operating in a Staley Laboratory where a temperature of 73°F., with a relative humidity of 65%, is constantly maintained.

•

Staley Laboratories are equipped to completely test the weavability of warp yarns.... To analyze and recommend sizing formulas for your mill requirements. This is only a portion of the research service that Staley's offer to textile men. Our skilled technicians and modern laboratories are ready to help you with any sizing problem.... A policy of cooperation and service that prompts mill owners, managers and superintendents to say they like to do business with Staley's.

Our complete line of Textile Starches has been laboratory developed to meet all requirements of weavability and weight, and is under exacting Control Laboratory supervision throughout the entire processing operation. As a result, Staley Starches can be depended upon for consistent, high quality and performance from shipment after shipment.

Write, wire or telephone for detailed information.

STALEY STARCHES

Staley's CORN AND SOY BEAN PRODUCTS

ATLANTA • SPARTANBURG
DALLAS • PHILADELPHIA
CHICAGO • NEW YORK
BOSTON • SAN FRANCISCO

A. E. STALEY MFG. COMPANY

DECATUR, ILLINOIS

AFTER 31,368* HOURS

Daycos spin uniform yarn!

Dayco Woolen and Worsted Cots give this kind of record service because they're designed and engineered for their specific job. Specially compounded to resist moisture, temperature extremes and other adverse operating conditions, Daycos just don't seem to wear out. After years of service their original coefficient of friction and resiliency is retained and they show no signs of grooving or other deterioration. This means Dayco-equipped mills enjoy lower production costs—increased efficiencies. A trial installation on your spinning or drawing frames will convince you Dayco Cots produce more uniform yarn, at less cost. Write Dayton Rubber, Dayton, Ohio or *Textile Division—Main Sales Office: Woodside Building, Greenville, S. C.*

REASONS Dayco COTS SAVE TIME, MONEY AND LABOR

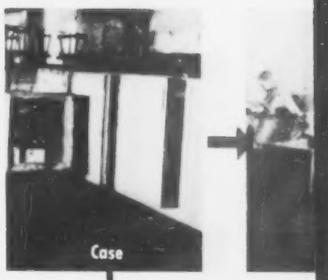
- Any combination of wool, rayon and mohair can be run equally well with a minimum of lint.
- Reduce matching-up by getting more uniformity in production.
- Increase cot life from as little as 60 to 90 days to estimated life of 10 to 15 years—based on years of field tests.
- Eliminate wasted time and labor in removing and resetting the pressure on rolls after shutdowns.
- As much as 66% savings in labor and time applying cots to arbors.
- Save valuable time for the spinning frame mechanics—as replacements of rolls on frames are reduced to the absolute minimum.
- Greatly reduce power consumption on spinning and drawing frames.

*Two 8-hour shifts per day, 5 days per week—over 7½ years.

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

TEXTILE WORLD'S CONTINUOUS-FILAMENT FLOW CHART



Legend:

Red line s

Black line

Triangle d

HIGHLIGHTS: *Synthetic-fiber procedures relatively well standardized—Some follow cotton, some silk, others specially developed — Chart is for continuous-filament yarn; synthetic staple follows flow in cotton and wool charts — Some acetate procedures differ from viscose and cuprammonium.*

CONTINUOUS-FILAMENT SYNTHETIC FIBERS have developed as one of the major branches of textiles along lines that are more clearly defined than those of the older, natural fibers—cotton and wool. The uniformity of the synthetics and the activities of their producers have done much to standardize procedures.

This flow chart is the fourth of TEXTILE WORLD'S series, begun 15 months ago. This one is devoted to continuous-filament synthetic fibers. Staple follows procedures shown in the cotton and wool charts already published. Knitting operations were covered in the knitting flow chart and are not therefore included here.

When rayon, the first synthetic yarn to reach commercial production, was first used as a textile raw material, it was processed by use of silk and cotton procedures. Even today, both silk and cotton systems are being used, particularly in warping. For slashing, cotton-type equipment (and procedures) are sometimes used for viscose rayon; but for acetate a new technology and new specialized equipment are generally found. Silk-type warping is shown in the chart. It is quite suited for small lots or complicated styles; but for bulk work, cotton-type warping and rebeaming are recommended.

Although in this chart are combined all the various continuous-filament synthetics, the differences among them do not permit them all to follow the same flow. For example, acetate rayon is not crepe twisted, nor is it printed to the extent that viscose is. Due to the many differences between viscose and acetate yarns, one major acetate producer has announced that he is dropping reference to the term rayon so that "cellulose acetate" will not be confused with "viscose rayon."

Of course, in the procedure shown for tire cord, only high-tenacity viscose rayon is used. The system shown is the one most widely employed; but another procedure has been quite successful, as described in TEXTILE WORLD, May, 1944, page 79.

Rayon cakes are rapidly replacing skeins. However, the procedures as shown apply to either skeins or cakes.

With the advent of slasher sizing of nylon, that fiber can follow the preparatory and weaving processes shown—and to some extent the finishing. Nylon thrown for use in full-fashioned knitting is sized on a special machine and is oiled as it is coned. These operations, if shown, would follow twisting; they belong properly to a knitting setup.

Glass yarns are not twist set (and, of course, not soaked); control of twist is achieved by balancing single-end twist with ply twist.

Monofilaments, such as vinylidene chloride and Plexon, are not twisted or sized. The operations they follow are principally warping, filling winding, and weaving. They are used already colored but may take calendering for a finish.

Of the other synthetics, poundage of continuous-filament types is not of great volume.

The flow chart does not attempt to cover many relatively small uses of synthetics, such as in narrow fabrics and woven labels, nor does it go into moiré finishing and block printing.

THIS FLOW CHART completes the fiber series, since charts for cotton and wool — covering spinning, weaving, and finishing — and also a general knitting chart, have previously been issued. Copies of this chart or copies of the three previous — but still current — ones can be obtained, as long as the supply lasts, from TEXTILE WORLD, 330 West 42nd Street, New York 18, N. Y.

Prices are as follows:

Cotton, wool, and continuous-filament charts, 25¢ each; 15¢ each in quantities of 20 or more.
Knitting charts, 15¢ each; 10¢ each in quantities of 20 or more.

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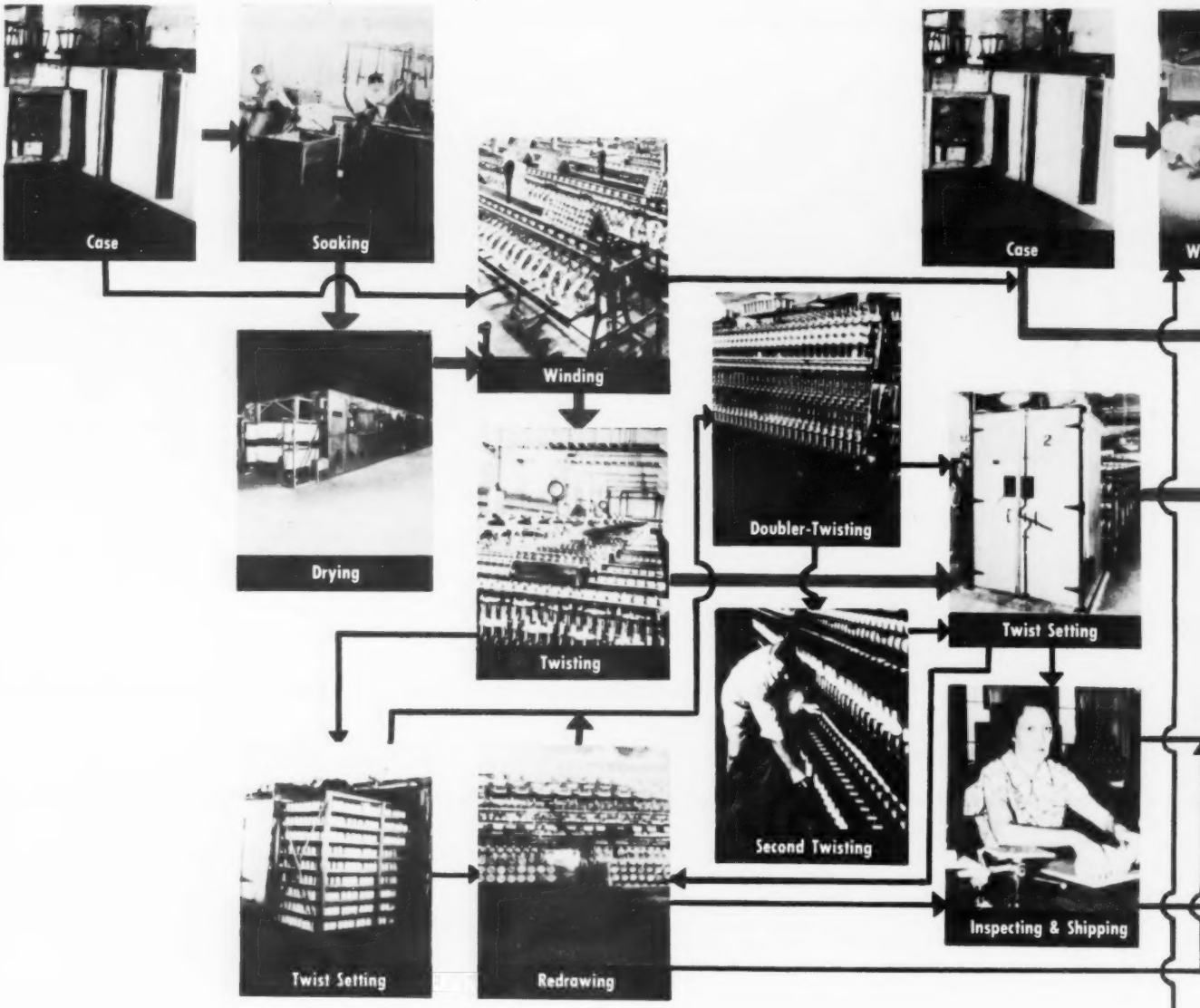
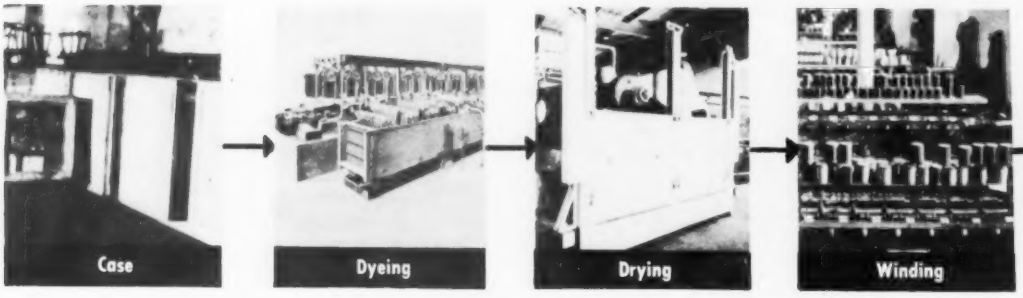
Throwing



Legend:

- Red line shows usual flow of materials
- Black line shows less usual flow
- Triangle denotes end of a process

Yarn Dyeing



Preparation

Weaving

Warping Flat Yarn

Slashing

Twisting or Tying

Weaving

Warping Twisted Yarn

Beaming

Drawing-In

Cloth room

Shearing

Filling Winding

Conditioning

Grading

(Filling is cotton)

Weaving

Packing & Shipping

Tire Cord

Beam

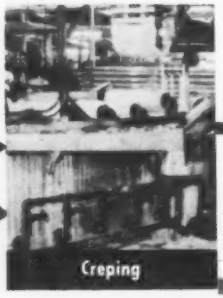
Beam Twisting

Respooling

Cabling

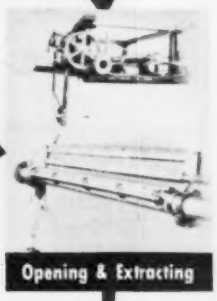
Crepes

Embossing

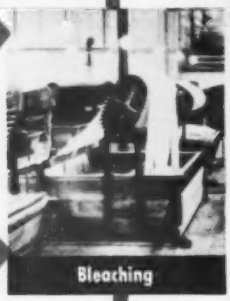


Creping

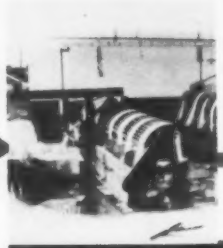
Dyeing



Opening & Extracting

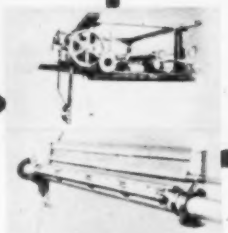


Bleaching

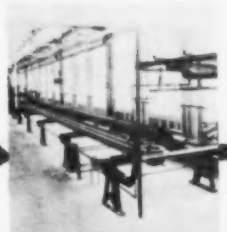


Boiling-Off

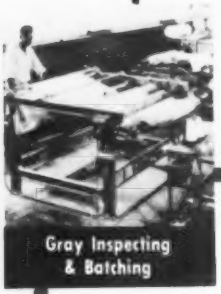
Pigment Taffetas



Opening & Extracting



Drying & Framing



Gray Inspecting & Batching

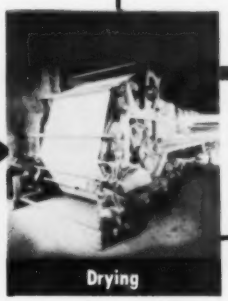
Linings, Satins, Taffetas

Acetate or Viscose

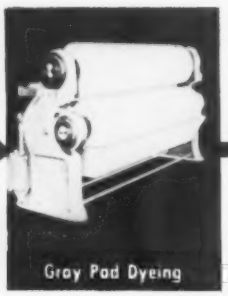
Wetting Out

Jig Scouring & Dyeing

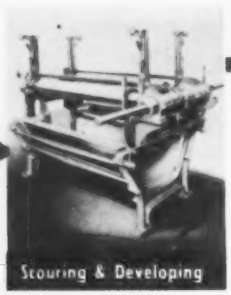
Extracting



Drying



Gray Pad Dyeing

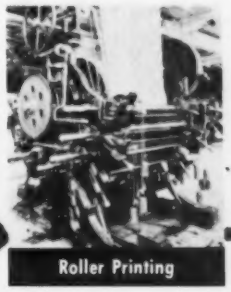


Scouring & Developing

Finishing

Drying

Framing



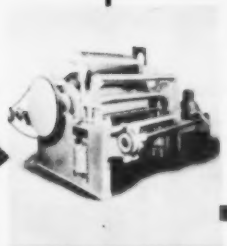
Roller Printing

Screen Printing

Ageing

Developing & Washing

ming

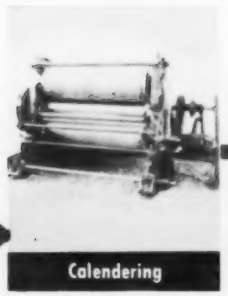


Pad Dyeing

Coating

Coating

Calendering



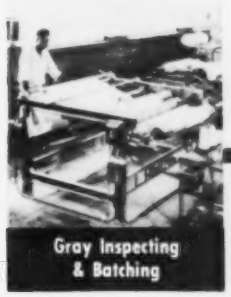
Calendering

Inspecting & Tubing

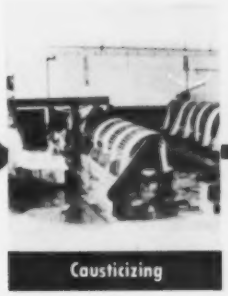
Shipping

Sheers

Special Finishing

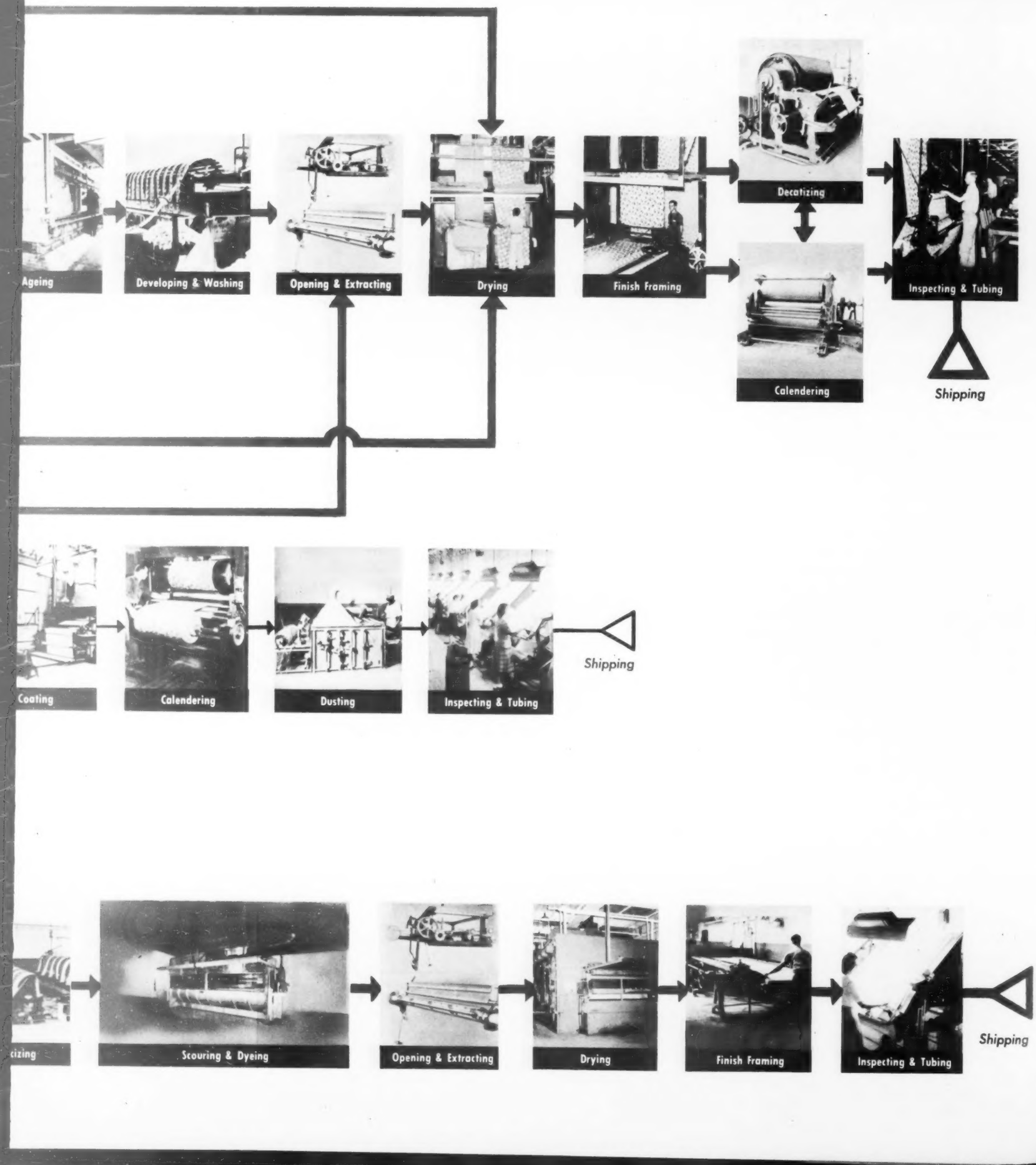


Gray Inspecting & Batching

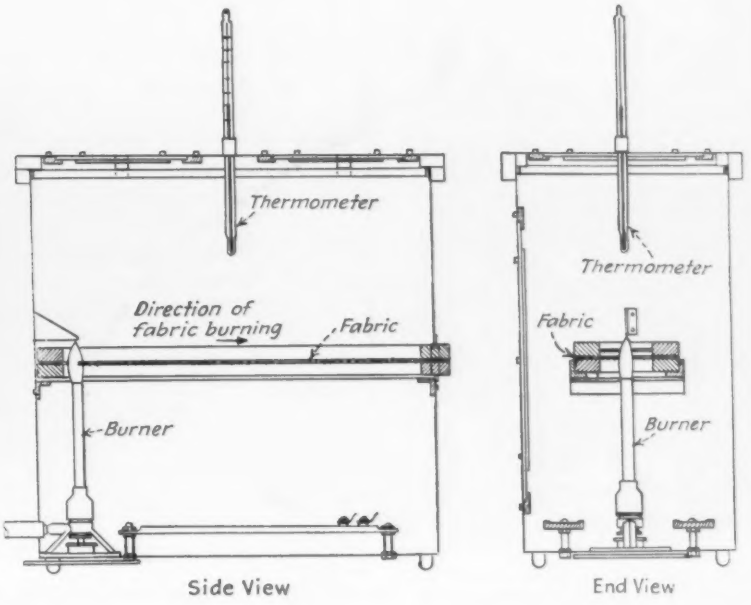


Causticizing

Scouring & Dyei


Ageing
Developing & Washing
Opening & Extracting
Drying
Finish Framing
Decatizing
Calendering
Inspecting & Tubing
Shipping
Coating
Calendering
Dusting
Inspecting & Tubing
Shipping
cizing
Scouring & Dyeing
Opening & Extracting
Drying
Finish Framing
Inspecting & Tubing
Shipping

Horizontal rate-of-burning equipment shown is described in National Bureau of Standards circular 455. It provides one of two tests being considered in federal legislation.



FLAMMABILITY Varies With Type Test and Fabric

HIGHLIGHTS: ***Three test methods available, two included in proposed federal legislation—Hazardous fabrics are those with long fine nap, light nets, and some coated cloths—Heavy, flat types not so dangerous.***

By DR. MARJORIE W. SANDHOLZER
Chemist, Fire Protection Section, National Bureau of Standards

SERIOUS ACCIDENTS resulting in the fiery deaths of children who were attired in potentially fatal play togs have aroused public interest and awakened individuals to the hazards inherent in certain types of rayon and cotton fabrics used in the manufacture of clothing.

The frequency of ignited-clothing accidents has focused attention on the need for a study of the "burning" characteristics of fabrics to determine the hazard-increasing factors and to distinguish between normal and unusually combustible fabrics. Research on this subject has been conducted by the Committee on Flammability of Consumer Fabrics of the American Association of Textile Chemists & Colorists and the National Bureau of Standards. California has already enacted State legislation regulating the manufacture and sale of highly combustible textiles, and other states are considering such legislation. Proposed Federal legislation regulating the shipment of highly combustible fabrics in interstate commerce is now before the House and Senate Committees on Interstate and Foreign Commerce. In the course of this research, the need for more information concerning accidents attributable to ignited clothing and the fabrics concerned became evident.

DATA. In an effort to obtain sufficiently complete records to permit analysis of the hazard factors responsible for accidents caused by the combustion of fabrics, a questionnaire was prepared asking for detailed information concerning patients admitted to hospitals during the preceding two years. The questionnaire was sent to some of the larger hospitals which furnish general, emergency, or children's services throughout the United States. Included in this analysis are replies received from 153 hospitals covering 1,083 accident records and newspaper reports of additional accidents.

Full details were not supplied for all of the 1,083 accidents covered by the survey. However, in 257 instances,

Inclined-plane flammability tester was developed by American Association of Textile Chemists & Colorists to detect unusually hazardous fabrics.

Accident Reports Summarized

Accidents involving clothing set on fire by small or common sources of ignition:

(A) Attributable to unusually combustable clothing		47
1. Pile or tufted fabrics	40	
2. Net	1	
3. Coated or oil-treated fabrics	2	
4. Grass skirts	3	
5. Santa Claus beard	1	
(B) Attributable to ordinary fabrics		41
1. Fairly heavy fabrics, as corduroy, denim, and similar work and play clothing material	10	
2. Rayons in flat weave	2	
3. Cotton flannels and flannelettes	6	
4. Lightweight cottons, as seersucker, voile, gingham, thin print	23	
TOTAL		88

Analysis of hospital records shows fabrics which have caused injury to wearers and indicates more dangerous types.

the accidents were directly traceable to clothing ignited by small or common sources, such as cigarettes, matches, and sparks from bonfires or open grates. In more than half of these occurrences, a child under 12 yr. of age was the one to suffer.

For accidents which might have been caused by the ignition of clothing alone, additional information was requested from the victims or their relatives. Analysis of the replies received from this source and from fairly comprehensive descriptions otherwise obtained is included in the accompanying tabulation entitled "Accident Reports Summarized."

Further examination of reports concerning accidents caused by the ignition of unusually combustible clothing disclosed the extremely rapid (sometimes described as explosive) bursting into flame of the fabric from some small source such as a cigarette, match, electric heating coil, or sparks from a bonfire.

Thirty-seven accidents occurred through the ignition of long-napped, fluffy, pile fabrics in the chaps of cowboy playsuits. Laboratory tests demonstrated that ignition and spread of flame on this material is much more rapid than on the usual rayon or cotton fabrics. A similar accident was caused by the instant ignition of a fuzzy, long-napped rayon sweater when the head from a "struck" match flew wild. Two other accidents resulted from the ignition of unusually fine tufted robes. In one instance, the "brush" of a lighted match on finely tufted cotton and in the other a glowing cigarette caused the long rayon tufting to burst into flame.

Ignition of a net fabric resulted disastrously when an evening gown described as silk net, trimmed at the hem with "varnished braid," brushed over a cigarette stub on the floor. The report stated that the braid at the skirt edge caught fire first and carried the flame around the hem, resulting in the rapid burning of the net and consequent envelopment of the wearer in flame. Another accident occurred when an especially treated fabric, an "oiled-silk" apron, touched the coils of an electric stove and still another, when a lighted match touched a child's "oil-treated" rain cape. The child's father, experimenting with a similar cape, found it ignited with equal rapidity from a glowing cigarette.

In accidents involving ordinary fabrics, more occurred with clothing of lightweight materials than with heavy. Many thin fabrics ignite easily and burn rapidly, but they constitute a class which it is not feasible at present to eliminate from general use. It was also observed that the percentage of fatalities is relatively smaller from accidents involving ordinary fabrics than from those involving unusually hazardous fabrics.

A very small percentage of the total ignited-clothing accidents which actually occurred throughout the United

(*Continued on page 186*)

Floor-Covering Flammability

Laboratory tests to set standards for the fire-resistant properties of textile floor coverings are now being undertaken by the American Society for Testing Materials, through the Pile Floor Coverings Sub-committee A-11 of their Textile Committee D-13, according to A. G. Ashcroft, chairman of the Technical Committee of the Carpet Institute, Inc.

The Carpet Institute's studies of the fire-resistant properties of textile floor coverings were initiated because the committee believed that the lack of relationship of wool-pile floor covering to fires in hotels and public buildings should be clearly understood. It should be generally known, the committee feels, that rather than help spread flame, wool-pile carpets actually help slow it.

Wool and part-wool floor coverings are called "fire retardant," while certain fluffy floor coverings made of vegetable or synthetic-fiber pile yarns might be termed "slow burning" or "combustible" and their use restricted to places with fewer fire hazards than hotels, theaters, or other places of public assembly.

Factors for Computing 3-Sigma Control Limits

Number of Observations in Sample	Chart for Averages			Chart for Standard Deviations					Chart for Ranges					Number of Observations in Sample
	Factors for Control Limits			Factor for Central Line	Factors for Control Limits				Factor for Central Line	Factors for Control Limits				
n	A	A_1	A_2	c_2	B_1	B_2	B_3	B_4	d_2	D_1	D_2	D_3	D_4	n
2	2.121	3.759	1.880	0.5642	0	2.064	0	3.658	1.128	0	3.686	0	3.268	2
3	1.732	2.394	1.023	0.7236	0	1.948	0	2.692	1.693	0	4.358	0	2.574	3
4	1.500	1.880	0.729	0.7979	0	1.859	0	2.330	2.059	0	4.698	0	2.282	4
5	1.342	1.596	0.577	0.8407	0	1.789	0	2.128	2.326	0	4.918	0	2.114	5
6	1.225	1.410	0.483	0.8686	0.003	1.735	0.003	1.997	2.534	0	5.078	0	2.004	6
7	1.134	1.277	0.419	0.8882	0.86	1.690	0.097	1.903	2.704	0.205	5.203	0.076	1.924	7
8	1.061	1.175	0.373	0.9027	0.153	1.653	0.169	1.831	2.847	0.387	5.307	0.136	1.864	8
9	1.000	1.094	0.337	0.9139	0.207	1.621	0.227	1.774	2.970	0.546	5.394	0.184	1.816	9
10	0.949	1.028	0.308	0.9227	0.252	1.594	0.273	1.727	3.078	0.687	5.469	0.223	1.777	10
11	0.905	0.973	0.285	0.9300	0.290	1.570	0.312	1.688	3.173	0.812	5.534	0.256	1.744	11
12	0.866	0.925	0.266	0.9359	0.324	1.548	0.346	1.654	3.258	0.925	5.593	0.284	1.717	12
13	0.832	0.884	0.249	0.9410	0.353	1.529	0.375	1.625	3.336	1.026	5.646	0.308	1.692	13
14	0.802	0.848	0.235	0.9453	0.378	1.512	0.400	1.599	3.407	1.121	5.693	0.329	1.671	14
15	0.775	0.817	0.223	0.9490	0.401	1.497	0.423	1.577	3.472	1.207	5.737	0.348	1.652	15
16	0.750	0.788	.....	0.9523	0.422	1.483	0.443	1.557	.....	.....	.....	.....	.....	16
17	0.728	0.762	.....	0.9551	0.441	1.470	0.462	1.539	.....	.....	.....	.....	.....	17
18	0.707	0.738	.....	0.9577	0.458	1.458	0.478	1.522	.....	.....	.....	.....	.....	18
19	0.688	0.717	.....	0.9599	0.473	1.447	0.493	1.507	.....	.....	.....	.....	.....	19
20	0.671	0.698	.....	0.9619	0.488	1.436	0.507	1.493	.....	.....	.....	.....	.....	20
21	0.655	0.680	.....	0.9638	0.501	1.427	0.520	1.481	.....	.....	.....	.....	.....	21
22	0.639	0.662	.....	0.9655	0.513	1.418	0.531	1.469	.....	.....	.....	.....	.....	22
23	0.626	0.647	.....	0.9670	0.525	1.409	0.543	1.457	.....	.....	.....	.....	.....	23
24	0.612	0.632	.....	0.9684	0.535	1.401	0.552	1.447	.....	.....	.....	.....	.....	24
25	0.600	0.619	.....	0.9697	0.545	1.394	0.562	1.438	.....	.....	.....	.....	.....	25

The above table is a copy with minor corrections of Table I on page 50 of Supplement B to the ASTM Manual on Presentation of Data. Reprinted courtesy of the American Society for Testing Materials.

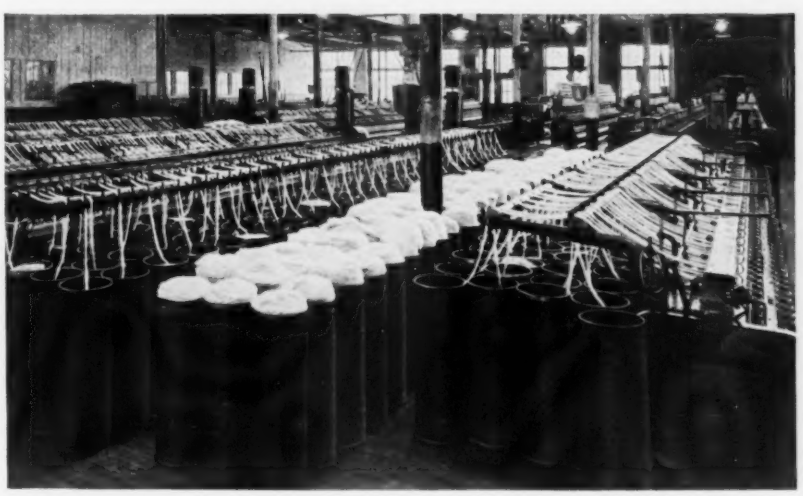
***Table of constants** for computing upper and lower control limits.*

QUALITY-CONTROL CHARTS
Aid Carding and Spinning

***HIGHLIGHTS:** Control charts present weight and strength data in concise, efficiently handled form—Limits aid in detection of variations and causes—Southern mills use statistical method for testing and control.*

By AUDREE D. ANTHONY and R. HOBART SOUTHER

Cone Mills, Greensboro, N. C.



***Use of statistical methods** can aid materially in control of uniformity in yarn manufacturing.*

VARIATIONS in the carding and spinning of yarns have always been a great problem in the textile industry. The application of statistical methods in other industries to control quality during production contributed to the war effort by reducing variations in the finished product. Such a method of controlling quality is equally applicable to cotton textiles and is being used more and more.

Close control is not necessary for most textile applications because the majority of textile mills operate on a minimum-requirement basis. However, the minimum and average variability of production should be determined, and a form of quality control maintained. One method of quality control is called the "Control Chart Method of Analyzing Data."[1] The hourly or daily inspection results are plotted on a chart which has control limits. The plotted points will show variation in quality from one batch to another. These variations may indicate assignable causes or not, depending on their relation to the control limits. If the points, denoting averages, fall within the limits, no action

HOW QUALITY-CONTROL CHARTS ARE MADE

JOB ANALYSIS - PREPARING CARD ROOM CHARTS

Steps and Key Points	Example
1. Average weight determinations for previous data on card sliver. a. Make sure have right figures. b. Keep decimals straight.	1. Card sliver Weight 61.7 grains 58.3 61.2 60.3 59.2 5 | 300.7 60.1 = average weight of card sliver = $\bar{X}$
2. Determine average range of weight determinations on card sliver. a. Find difference between highest and lowest weight on each day.	2. Highest - Lowest = Range 65 58 7 61 56 5 65 57 8 66 56 10 63 56 7 5 | 37 average range of card sliver = 7.4 = $\bar{R}$
3. Calculate upper and lower control limits for average weight by formula: $\bar{X} \pm A_2\bar{R}$ where, $\bar{X}$ is average weight. A_2 is constant for (n) number of figures in day's average, found in table in "Control Chart Method of Controlling Quality During Production," Z1.3-1942, American Standards Ass'n, p. 39. (See copy of table on preceding page.) $\bar{R}$ is average range. $\bar{X} + A_2\bar{R}$ is upper control limit. $\bar{X} - A_2\bar{R}$ is lower control limit.	3. $\bar{X} \pm A_2\bar{R}$, where $\bar{X}$ is constant weight = 60.1 A_2 is constant for (n) number of figures on one day, (n) is 6, A_2 = 0.483 (See A_2 column on accompanying copy of table) $\bar{R}$ is average range = 7.4 $\bar{X} + A_2\bar{R}$ = 60.1 + (0.483) (7.4) = 60.1 + 3.6 = 63.7 = Upper Control Limit $\bar{X} - A_2\bar{R}$ = 60.1 - (0.483) (7.4) = 60.1 - 3.6 = 56.5 = Lower Control Limit
4. Draw upper and lower control limits and average line on chart for weight. a. Draw upper and lower control limits with red lines. b. Draw average line with black pencil line.	4. Card Sliver - Weight Chart 65 — 63.7 U.C.L. 60 — 60.1 Average 55 — 56.5 L.C.L.
5. Calculate upper control limit for average range by formula: $D_4\bar{R}$ where, D_4 is constant for (n) number of figures in day's average, found in table in "Control Chart Method of Controlling Quality During Production," Z1.3-1942, American Standards Ass'n, p. 39. (See copy of table on preceding page.) $\bar{R}$ is average range.	5. D_4 times $\bar{R}$, where D_4 is constant for (n) number of figures in one day's average, (n) is 6, D_4 = 2.004 (see D_4 column on attached copy of table) $\bar{R}$ is average range = 7.4 $D_4\bar{R}$ = (2.004) (7.4) = 14.8 = Upper control limit for Range
6. Set lower control limit for average range at zero. a. Aim of all production is to have zero range or variation.	6. 0 = Lower control limit for Range
7. Draw upper and lower control limits and average line on chart for range. a. Draw upper and lower control limits with red lines. b. Draw average line with black pencil line.	7. Card Sliver - Range Chart 20 15 — 14.8 U.C.L. 10 — 7.4 Average 5 0 — 0 L.C.L.
8. Repeat steps 1 through 7 for drawing sliver and slubber roving.	

The principles involved above may likewise be used as a guide for preparing control charts in other processes, such as skein break and count tests in the spinning room, breaking strength of finished cloth, chemical analyses, and for giving a quick picture of inspection reports over a long period of time on such things as gray goods from different mills, per cent seconds, and total imperfections in finished goods.

The job analysis above outlines steps to be followed in determining control limits and plotting data. Shaded lines on this page and the next indicate red lines.

is taken because the process is normal and in control. If a point falls outside the control limits, then there is a cause; and action should be taken by the foreman, or whoever is responsible for the operation of that particular department, to determine the cause and remedy it. Once the control charts get working, the department may expect:

1. An improved product
2. To hold closer tolerances
3. To help meet specifications in delivery of product to next department
4. Less seconds and irregulars
5. Less samples needed to get proper information
6. Less destructive tests
7. Improved quality of work in next department
8. Improved relationships between department heads
9. By tagging samples with machine number, to locate source of trouble more quickly
10. An efficient method of presenting data on break, weight, and other tests, to foreman and superintendent, whereby they can quickly compare daily tests with those of previous week or month without having to search through piles of record sheets.

This control-chart method is based on the fact that by statistical analysis of past data on production, predictions can be made of the variations to be expected in future production. A control chart is drawn up from records of previous tests on which is plotted upper control limit, average line, and lower control limit. For example, skein breaking-strength tests on a given count of yarn over a period of months show that the average breaking strength is 106 lb.; and by calculation, that the upper control limit is 116 lb., and that the lower control limit is 96 lb. This means that, during normal production, this count of yarn can be expected to have a breaking strength between 96 lb. and 116 lb. for 99.73% of the time. If a test on this yarn shows a breaking strength above 116 lb. or below 96 lb., there is a probable assignable cause, or reason, such as difference in machine setting, variation in weight of roving or sliver, etc. The control limits provide criteria for immediate action to adjust machines or to reject some incoming material. Thus a variation greater than that expected can be checked for cause and an attempt made to eliminate this cause.

RANGE CHART. Since the control chart is usually a chart of average values, it is necessary to know for purposes of control the range of the

individual tests making up the average that has been plotted on the control chart. Therefore, it is advantageous to have a range chart in conjunction with the control chart. The range is defined as the difference bteween the highest and lowest test figures making up an average. For example, breaking-strength tests are made on four different bobbins of a given count of yarn. The average breaking strength for these four tests is 100 lb., which is within the control limits. But this average figure of 100 lb. does not tell us how great the variation is between the four different bobbins used in the test. If we determine the difference between the highest break and the lowest break of these four bobbins, and plot on a range chart, we can tell if the individual variation from bobbin to bobbin is within expected limits. A range chart has upper control limit, average line, lower control limit, also based on previous records.

A possible source of variation in the manufacture of cotton yarn is to be found in the weight per yard of the sliver and roving produced in the carding and drawing processes. In order to limit the variation in the number of yarn produced, samples from the card sliver, drawing sliver, and slubber roving are weighed to determine if the machines are set right to produce the desired hank number. Such a system of control and testing in the card room is now in operation in several mills in the South. The laboratory prepares the charts for the card room use from data collected by the mill. Then, the mill staff plots from shift to shift the results of tests made on card sliver, drawing sliver, and slubber roving, and keeps the charts before them so that they can look for causes of variations when the weights fall outside the control limits. The samples should be marked to show the card or other machine from which taken, so that no time may be lost in locating any source of trouble.

DATA SHEET — CARD-ROOM TESTS

Card Sliver

Day	Weight in Grains per Yard						Average	Range
1	65	62	63	58	60	62	61.7	7
2	58	61	56	56	59	60	58.3	5
3	63	61	65	60	57	61	61.2	8
4	58	66	56	62	60	60	60.3	10
5	63	57	60	58	61	56	59.2	7

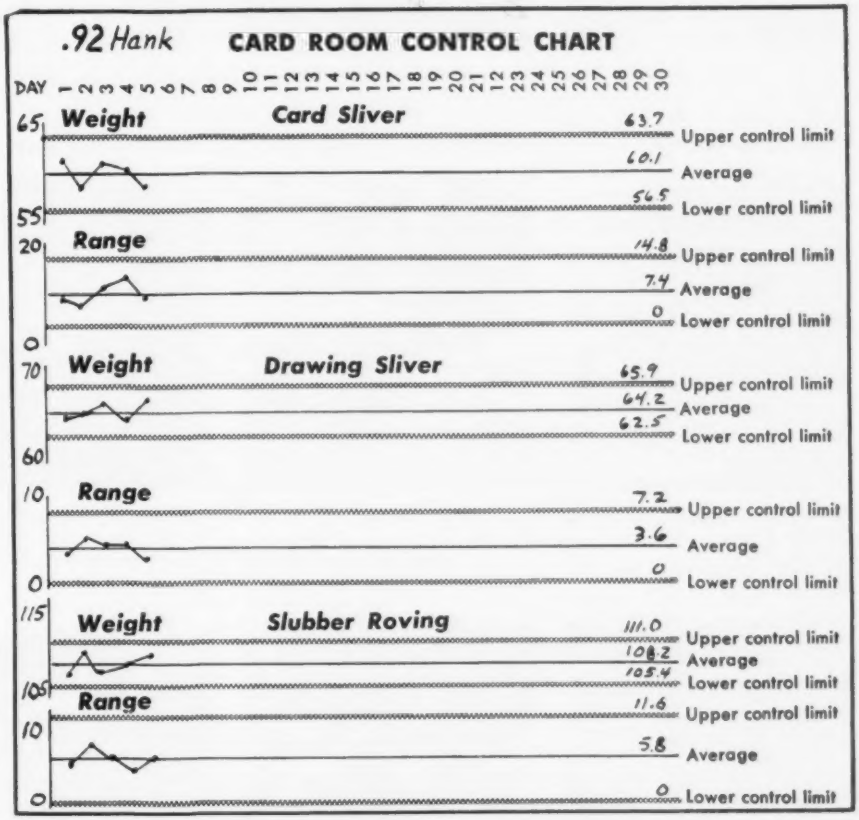
Drawing Sliver

Day	Weight in Grains per Yard						Average	Range
1	63	65	63	62	65	64	63.7	3
2	66	64	61	65	66	62	64.0	5
3	64	67	65	64	63	66	64.8	4
4	66	63	62	63	62	65	63.5	4
5	64	66	65	66	64	65	65.0	2

Slubber Roving

Day	Weight in Grains per 12 Yard						Average	Range
1	107	109	107	105	104	106	106.3	5
2	114	110	107	106	107	112	109.7	8
3	108	106	111	105	108	109	107.8	6
4	107	110	108	109	106	108	108.0	4
5	112	107	106	110	108	111	109.0	6

Weight figures on card and drawing-frame sliver and slubber roving are determined daily by the mill laboratory. Average and range figures are used in plotting curves on quality-control charts.



Quality of sliver is checked by a glance at these charts made up from the laboratory data. Only if weights fall outside control limits need the cause for variation be sought.

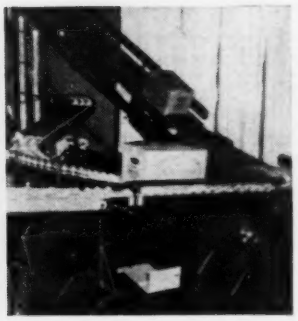
CALCULATIONS. The accompanying job-analysis sheet for preparing the card-room charts can perhaps best illustrate the method and calculations involved in setting up these charts. A typical example of the steps necessary for preparation of a control chart is shown alongside the accompanying job analysis. A control chart similar to the ones in use in one mill is also shown, made up from a card-room-data sheet. In this mill, the control chart is set up to be used over a period of three to six months. It is to be noted that, on the attached chart, the wider space between the upper and lower control limits on the weight chart for card sliver means that greater variation is to be expected in the card sliver than in the drawing sliver or slubber roving. On the basis of the data given in the example, the card sliver weights can be expected to vary as much as 6% from the average, the drawing sliver, 2.7%, and the slubber roving, 2.6%.

[1] Based on method set forth in *Control Chart Method of Analyzing Data*, Z1.3-1942, published by American Standards Association, 70 East 45th St., N. Y. 17, N. Y.

MATERIALS-HANDLING Show

A hydraulic cotton-bale-stacking attachment requiring no pallet was shown for the first time by Hyster Co. The attachment is shown in operation on a gasoline-powered truck.

A lightweight dockboard made of magnesium was easily lifted by one man.

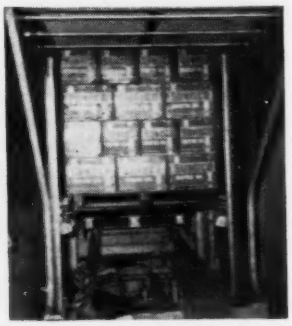


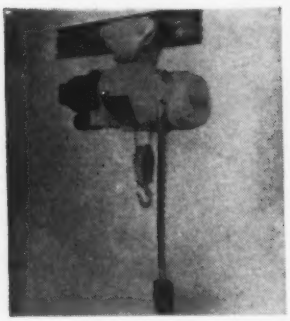
Many types of conveyors were demonstrated in unique handling combinations.

Heavy cylindrical loads up to 40 in. in diameter can be handled with little effort by this truck by Ironbound.

A collapsible pallet box which can be stocked with one side removed collapses to less than one-third its set-up size.

Automatic loading of pallets is accomplished by the Production Aids loader shown here handling cartons of oil. Here 48 boxes are automatically loaded in tied-in layers on a pallet which is expelled on a conveyor for further handling.

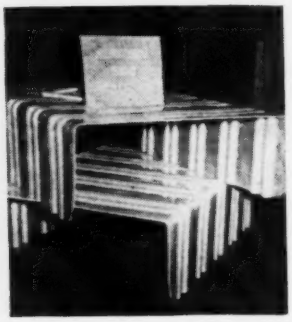




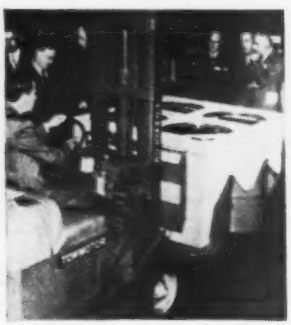
A light-duty hoist introduced by Yale & Towne is available in ¼-, ½-, and 1-ton capacities. Cost is said to be low.

Fork-truck unloading of palletized drums was carried out as part of the demonstration of handling equipment in action.

A dual-purpose conveyor can be used for power movement of cartons upward and gravity movement downward.



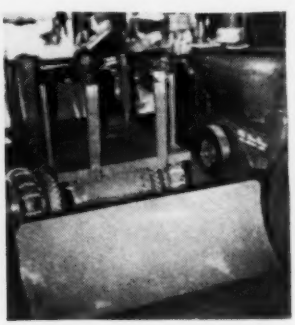
Use of many new materials in handling accessories, as these corrugated-aluminum skid platforms, was in evidence.



Up to four drums can be handled without a pallet by the fork-truck attachment shown by Towmotor Co. for use on several models of their gasoline- and electric-powered trucks.

Baled waste material is handled without a pallet by Baker's new 1,000-lb. capacity truck. Unit loads on pallets can also be handled. Weight with load is only 3,800 lb.

Unit loads of barrels are easily stacked by the Transtacker, by Automatic Transportation Co. Hand trucks provide advantages of fork-lift trucks at half the price and weight.



A prime-mover announced by Bell Aircraft can be used as a stake-platform truck or a snow-plow, (left), or for hauling coal or other material in a 10 cu. ft. bucket (background).

Draws Many Textile Men

HIGHLIGHTS: *Textile executives join 15,500 industrial leaders in viewing cost-cutting handling equipment—Many new products shown—Devices for handling without pallets get much attention—Use of new materials evident.*

By **WILLIAM A. NEWELL,** *Assistant Editor, TEXTILE WORLD*

MATERIALS-HANDLING FILMS

A review of some of the films listed below may aid in determining possible applications of mechanical-handling equipment in your plant. All films are available at no charge from sponsoring companies at the addresses shown or from local representatives. Most are 16mm., sound.

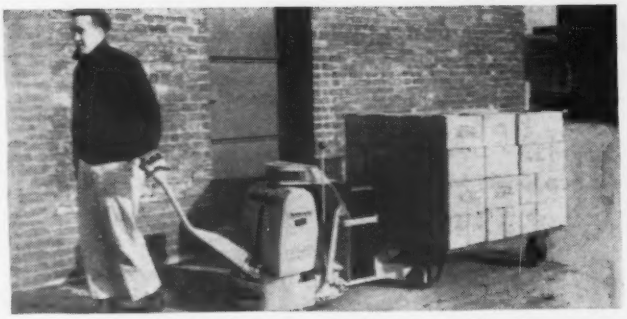
TITLE	*PRODUCING COMPANY*
Up and Over	American Monorail Co., 13129 Athens Ave., Cleveland 7, Ohio
Moving of Lumber Ross Lift Truck	Ross Carrier Co., Benton Harbor, Mich.
Pacemakers of Industry Automobile Manufacture	Jervis B. Webb Co., 8951 Alpine Ave., Detroit, Mich.
Handling Material Economically the Hydraulic Way	Joyce-Gridland Co., 2027 E. 1st St., Dayton, Ohio
New Horizons in Welding	Harnischfeger Corp., 4643 W. National Ave., Milwaukee, Wis.
Flow Process Chart and How to Use It	Electric Industrial Truck Association, Frick Bldg., Pittsburgh 19, Pa.
Materials Handling Newsreel No. 1 Materials Handling Newsreel No. 2	Clark Tructractor Div. of Clark Equipment Co., W. Champion St., Battle Creek, Mich.
It's Your Move	Thew Shovel Co., Lorain, Ohio
Pay Loads Pay Off Transporter Newsreel Skylift Newsreel	Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill.
Barber-Greenes in Action	Barber-Greene Co., Aurora, Ill.
Material Handling in Marine Terminal and Warehouse	The Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 14, Ohio
Conveyor Design and Application	Bosworth Mfg. Co., Caxton Bldg., Cleveland 15, Ohio
It's Your Money	Yale & Towne, 4530 Tacony Ave., Philadelphia, Pa.
Electric Trucks Serving Industry Trackless Train Operations Fork-Truck Pallet Operation	The Mercury Mfg. Co., 4044 S. Halstead Ave., Chicago 9, Ill.
Model H-A Payloader	Frank G. Hough Co., Libertyville, Ill.
Straightline Unscrambling Table	Island Equipment Co., 101 Park Ave., New York 17, N. Y.
Krane Kar	Silent Hoist & Crane Co., 841 63rd St., Brooklyn, N. Y.
Mobilift Operations on Trucking Dock	Mobilift Corp., 835 S.E. Main St., Portland, Ore.
Liftall Forks in Action	Morrison Co., 4119 Prospect Ave., Cleveland, Ohio
Meet Micarta	Westinghouse Electric Corp., P.O. Box 868, Pittsburgh 30, Pa.
Unit-Load Methods of Bracing Carload Shipments 20 Minutes versus Eight Hours	Acme Steel Co., 2840 Archer Ave., Chicago 8, Ill.

MANY HUNDREDS of key textile-mill men were numbered among the nearly 15,500 industrial executives that attended the 2nd Annual Materials-Handling Show held in Cleveland in mid-January, an exposition three times larger than the first show held last year. On display was the handling equipment of all types and for all purposes of nearly 200 exhibitors, including floor and overhead conveyors, hoists, cranes, industrial trucks and accessories, packing equipment, scales, and other equipment. Concurrently with the show, a conference on materials handling was held in which many authorities spoke on handling methods and problems. A continuous program of motion-picture films and film strips of materials-handling equipment in action was carried on. The accompanying panel lists visual aids shown, all of which are available for mill showing through company representatives. A demonstration during one afternoon of various types of equipment in action and its superiority over manual handling was attended by about 5,000 visitors to the show. Earl Bunting, President of the National Association of Manufacturers, addressed the main banquet of the exposition.

Many new products and accessories were introduced at the show. One center of attraction was the automatic pallet loader shown by Production Aids, Inc., 6842 Beck Ave., N. Hollywood, Cal. Termed "the missing link" in handling mechanization, the unit is designed to fulfill what in many plants remains the only task requiring manual handling—loading boxes onto pallets. The new pallet loader handles boxes suitable for yarn or other inter- or intra-plant shipments as they leave a conveyor line, loads them onto a pallet, cross-tying when desired, and expels the loaded pallet onto a conveyor to be picked up by a fork truck. An electrical control unit permits selection of up to 18 stacking arrangements, varying (1) number of boxes per layer, (2) number of rows per layer, (3) number of boxes rotated per row (for cross-tying), (4) box spacing, and (5) number of layers. Depending on the length of carton, 25 to 30 cartons can be loaded per minute. Another similar product of this company is an automatic drum and barrel pallet loader which loads four 55-gal. drums per pallet. Other size drums or pour pails may also be handled.

A working model of another pallet loader was shown by Preben Jessen Co. Handling Engineers, Chrysler

A single stroke of the handle of this new Lyon-Raymond truck lifts up to 2,500-lb. loads.



Live and semi-live skids are handled by electric power by use of Automatic's improved hand tractor. The Transtractor will push or pull a 6,000-lb. trailer load all day.

Batteries are used as the counterbalance in this new lift truck introduced by Moto-Truc.

Using a cardboard sheet instead of a pallet, the Clark Pul-Pac attachment is moved against the load, and a gripper closes on the projecting edge of the load-base sheet. When retracted, the rack and gripper pulls the load onto the plates.

The Pul-Pac drew much attention, even though originally introduced at last year's Materials-Handling Exposition.

Unloading at destination is accomplished by the rack pushing the load off the load plates as the truck moves backwards.

Specially stacked loads can be moved without a pallet by the inflated pneumatic tubes on the inner sides of the fork prongs. The air-expanding-fork accessory shown here is made by Service Caster & Truck Corp.

A portable belt conveyor for medium-weight loads was displayed by Rapids-Standard Co.

Bldg., New York 17, N. Y. This company also showed a model of a fork-truck attachment for handling bale.

DRUM HANDLER. Much interest was shown in a drum-handling attachment for fork trucks introduced by Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio. The attachment permits the handling of up to four full 55-gal. drums without any type of pallet. The unit is moved into place above the drum or drums to be transported, is lowered to place hydraulically operated gripping shoes in position at the barrel sides, the clamps are tightened, and the drums are raised and moved where desired.

The RolTruk, a hand truck designed to lift and carry cylindrical loads up to 40-in. diameter and up to 1,500 lbs. was shown for the first time by Ironbound Box & Lumber Co., 102 Hoffman Place, Hillside, N. J. Adaptable to some types of handling of warp beams, cloth rolls, or drums, the truck is constructed to prevent damage to loads carried while locking the load in position. A fingertip release catch controls the loading and unloading.

A new truck designed for handling loads up to 1,000 lb. in narrow aisles, congested areas, and on low-capacity elevators was introduced by Baker Industrial Truck Div. of Baker-Raulang Co., 2168 W. 25th St., Cleveland 13, Ohio. The truck weighs only 3,800 lb. with load, has a 36-in. wheelbase, an over-all length exclusive of forks of 53⅜ in., and requires only 67½ in. plus the length of the load to make a right-angle turn. The truck is sold complete with a battery and charger for $2,791.

A dual-purpose conveyor for movement by power of packages upward from floor to floor and movement downward by gravity was shown by Wehle Conveyor Co., 201 Water St., Binghamton, N. Y. Two sets of fingers attached to sprocket-driven chains push packages up the slide. When one set reaches the top and goes over,

(*Continued on page 218*)

The battery hand—eventually a vanishing American?

WEAVING DEVELOPMENTS *Previewed by AATT*

HIGHLIGHTS: *Draper Corp. product-development research follows four channels—New materials promise many improvements—Automatic battery filler in development—Economical and efficient shuttleless looms present complex problem.*

POSSIBLE FUTURE DEVELOPMENTS for weave-room operations were previewed by F. M. FitzGerald, director of research of Draper Corp., Hopedale, Mass., in a recent talk before the American Association of Textile Technologists, in New York.

FOUR CHIEF AIMS. Draper's research efforts are directed generally into four channels, said Mr. FitzGerald: (1) improvement of the present type of loom, (2) reduction of cost of warp and filling handling (this of course applies to present looms as well as any new development), (3) design of looms to weave without conventional shuttle and bobbin, and (4) machinery for production of non-woven fabrics [bonded-fiber webs].

Mr. FitzGerald revealed that research is continuing in an effort to find better materials than wood for bobbins and shuttles, and that tests are now being made on shuttles of many plastic materials.

Lay beams of extruded aluminum shapes have been produced recently and are under test in several mills, Mr. FitzGerald continued. Another project attempts to eliminate the present crank throw and reciprocating lay.

A simple, inexpensive, and more efficient shuttle-check device under development which replaces the commonly used check strap is showing considerable promise. A parallel motion which will not allow picker jump, which will produce more positive shuttle flight, and which cannot be adjusted by loomfixers or weavers to suit individual whims is also undergoing field trials, Mr. FitzGerald reported.

A let-off motion with fewer parts which will provide uniform warp tension from full to empty beam is showing up well in field trials on goods ranging from surgical cottons to high-grade satins and taffetas.

Electric and electronic applications are being worked out in the laboratories, including pushbutton controls to eliminate driving clutches and shipping parts, electric protection to eliminate the troublesome bang-off condition which results when shuttles do not box properly, and electric warp-let-off controls.

The growth in size of warp beams as a factor in reducing handling of materials was noted by Mr. FitzGerald. Where 18- and 20-in. diameters were once fairly general, the 26-in. diameter is now standard. Diameters of 32-in. are not uncommon, and 48-in. diameters are being used experimentally. Every increase in size introduces a problem in mounting and let-off control. Experimental installations by Draper of 32-in. warp beams mounted above the loom are now in some mills.

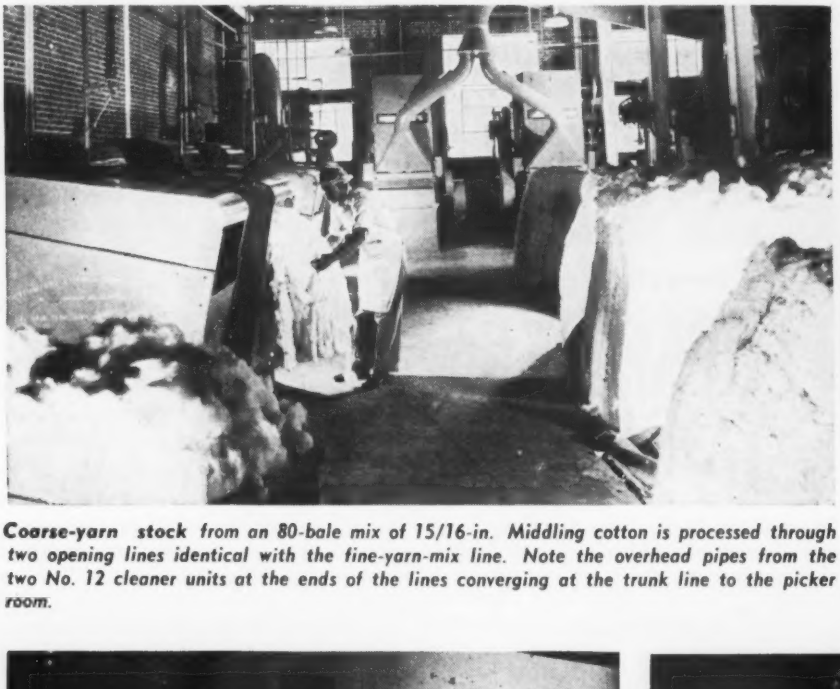
TO REPLENISH BOBBIN SUPPLY. "For a long time, we have been actively engaged in the design of a hopper-and-conveyor means for automatically replenishing the filling bobbins in the loom battery in order that the present cost of battery tenders might be reduced," said Mr. FitzGerald. "The design in general consists of an automatic hopper stationed at one end of a weave room with a conveyor to a quantity of looms. An indication from the feeler of any loom in the group would work the hopper mechanism and cause a new full bobbin to be conveyed to the battery of the loom making the indication to replace the full bobbin transferred to the shuttle.

"An experimental installation on twelve looms in a neighboring cotton mill is not operating satisfactorily up to this time, but we continue in our efforts because we believe that, once solved, the device will practically eliminate battery tenders in those mills where one or a few different filling yarns are used on a quantity of looms, and should not be an expensive installation.

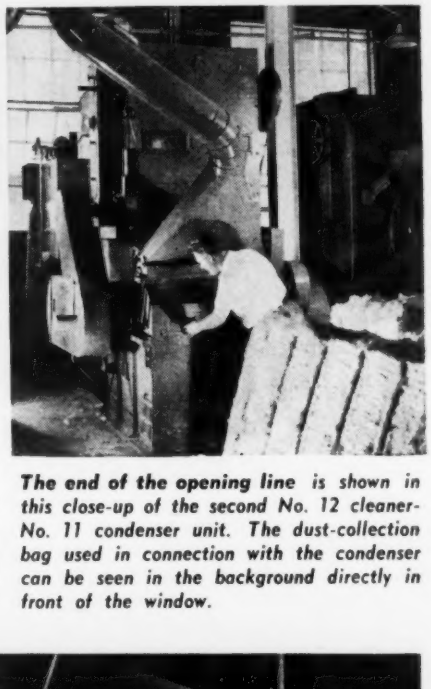
"The problem of weaving without the expense of shuttles and bobbins and without the expense of winding and handling bobbins has always in-

(*Continued on page 216*)

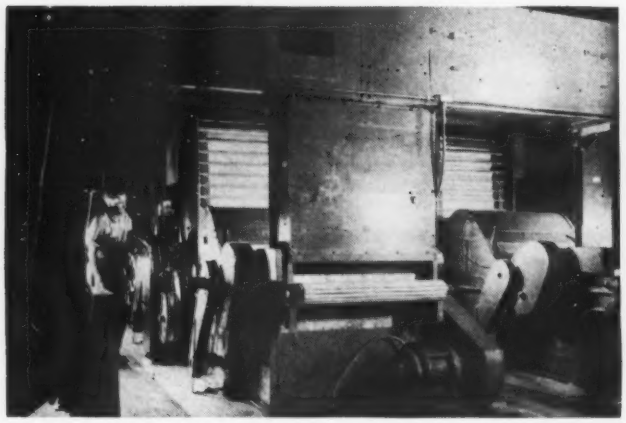
***Fine-yarn stock** from a 30-bale mix of 1 1/16-in. Middling cotton is fed to the three blending feeders at the right. It passes on an apron to the vertical opener in the center, from which it is taken by the large overhead pipe and delivered to the first No. 12 opener-No. 11 condenser unit in the extreme background. It then passes to the second No. 12-No. 11 unit, left, and is carried to the picker room.*



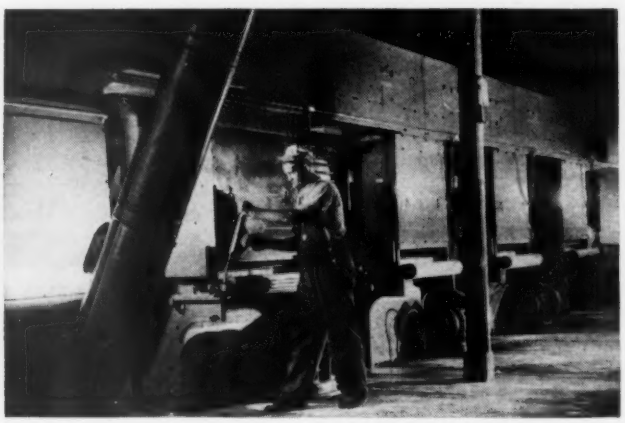
***Coarse-yarn stock** from an 80-bale mix of 15/16-in. Middling cotton is processed through two opening lines identical with the fine-yarn-mix line. Note the overhead pipes from the two No. 12 cleaner units at the ends of the lines converging at the trunk line to the picker room.*



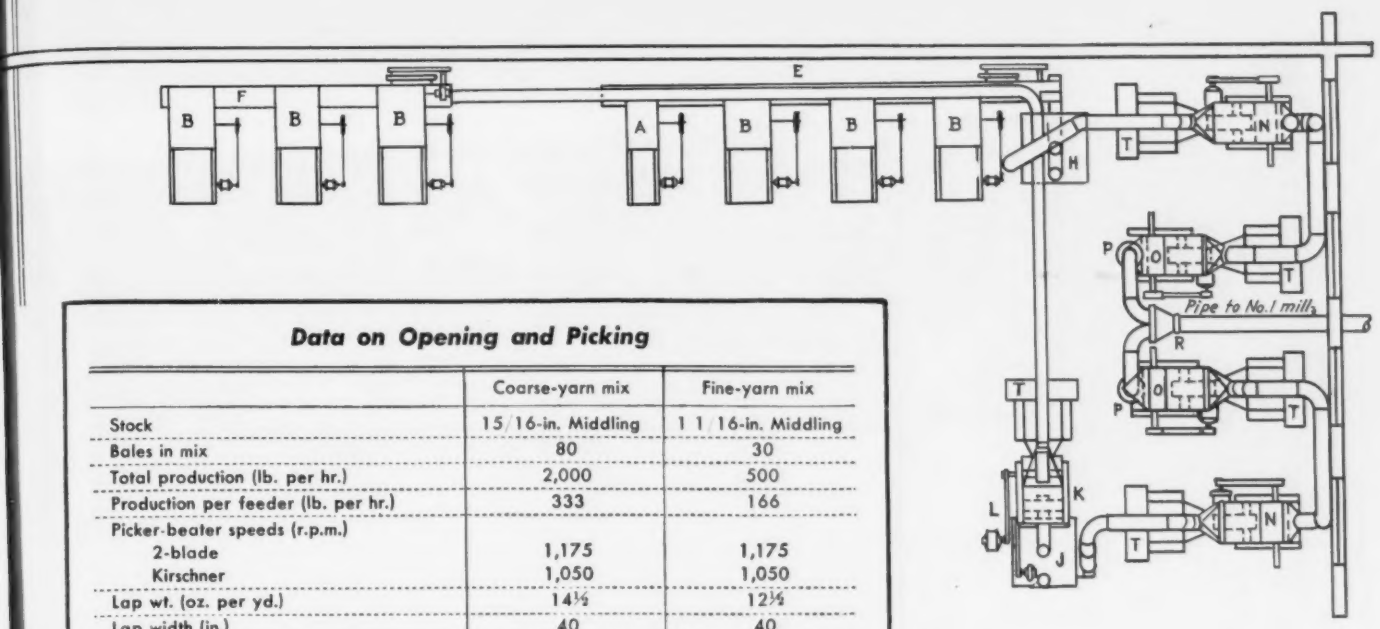
***The end of the opening line** is shown in this close-up of the second No. 12 cleaner-No. 11 condenser unit. The dust-collection bag used in connection with the condenser can be seen in the background directly in front of the window.*



***The inclosed distributing apron** overhead receives the stock from the trunk line and delivers it to the reserve boxes at the backs of the pickers. These reserve boxes replaced the hopper feeders in the old picker layout.*



***Two-beater pickers** are now used instead of the three-beater pickers formerly used. The reserve box at the rear feeds stock to the two-blade beater section, from which the stock is taken by the blending-reserve section and goes on to the three-lag Kirschner beater.*



Data on Opening and Picking

	Coarse-yarn mix	Fine-yarn mix
Stock	15/16-in. Middling	1 1/16-in. Middling
Bales in mix	80	30
Total production (lb. per hr.)	2,000	500
Production per feeder (lb. per hr.)	333	166
Picker-beater speeds (r.p.m.)		
2-blade	1,175	1,175
Kirschner	1,050	1,050
Lap wt. (oz. per yd.)	14½	12½
Lap width (in.)	40	40
Opening and picking waste (%)	2.32	2.32

NEW OPENING ROOM
Features Better Blending

HIGHLIGHTS: *More blending with less beating yields better picker laps at Pepperell Mfg. Co., Pepperell, Ala.—Three lines of opening deliver 2,500 lb. per hr.—Fewer setbacks and less variation have resulted.*

By P. M. THOMAS
Associate Editor, Textile World

MORE UNIFORM LAPS are being obtained at Pepperell Mfg. Co., Pepperell, Ala., as a result of better cleaning and blending in the new opening room recently completed. Production in pounds per hour is substantially the same as with the old layout of machinery, but considerable improvement has been noticed in the number of setback laps and the yard-by-yard variation in standard laps.

Each of the three present opening lines, equipped with all Saco-Lowell machinery, consists of three blending feeders, vertical opener, No. 11 dust collector, No. 12 cleaner, No. 11 dust collector, and No. 12 cleaner. In the picker room, an overhead condenser delivers the stock to a distributing apron, which conveys it to a reserve box at the back of each picker. Only two beater sections are used in the picker. The stock goes to a two-blade beater, a blending reserve, and a three-lag Kirschner beater. For preparing white waste for reprocessing, there is a Saco-Lowell waste feeder equipped with an oscillating spiked beater.

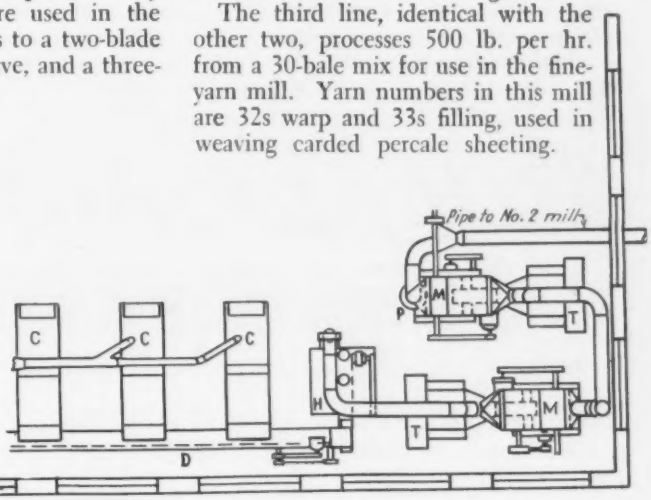
Pepperell operates two card rooms, one for processing coarse work and one for processing fine work. Two of the opening lines converge and are used for preparing stock from an 80-bale mix to be spun into warp counts ranging from 12s to 22s and filling counts ranging from 6s to 25s. These yarns go into such fabrics as drills, twills, and jeans. An hourly production of 2,000 lb. is required to meet the mill's needs for coarse goods.

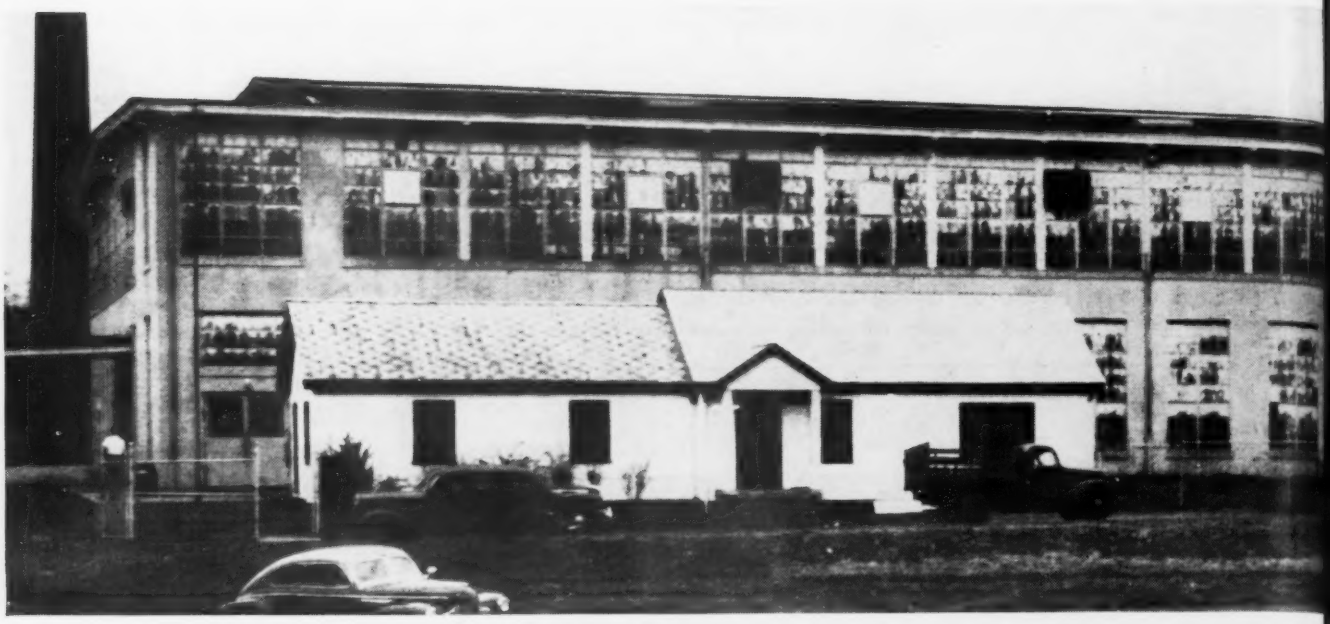
The third line, identical with the other two, processes 500 lb. per hr. from a 30-bale mix for use in the fine-yarn mill. Yarn numbers in this mill are 32s warp and 33s filling, used in weaving carded percale sheeting.

LEGEND

Symbol	Machines
A	24-in. waste feeder
B	38-in. F5 feeders
C	No. 7 feeders with motor and fan
D	Mixing feed table
E	Mixing feed table
F	Mixing feed table
H	Vertical opener
J	Vertical opener
K	No. 11 condenser
L	Chute from No. 11 condenser to vertical opener
M	No. 12 opener—new No. 11 condenser feed and steel mouth
N	No. 12 opener with No. 11 condenser feed
O	No. 12 opener—new No. 11 condenser feed, solenoid, motor brackets, steel mouth
P	Adjustable cone mouth
R	Special two-way mouth
T	No. 6 filter with motor

Photographs for Pepperell Mfg. Co. by Robert Yarnall Richie





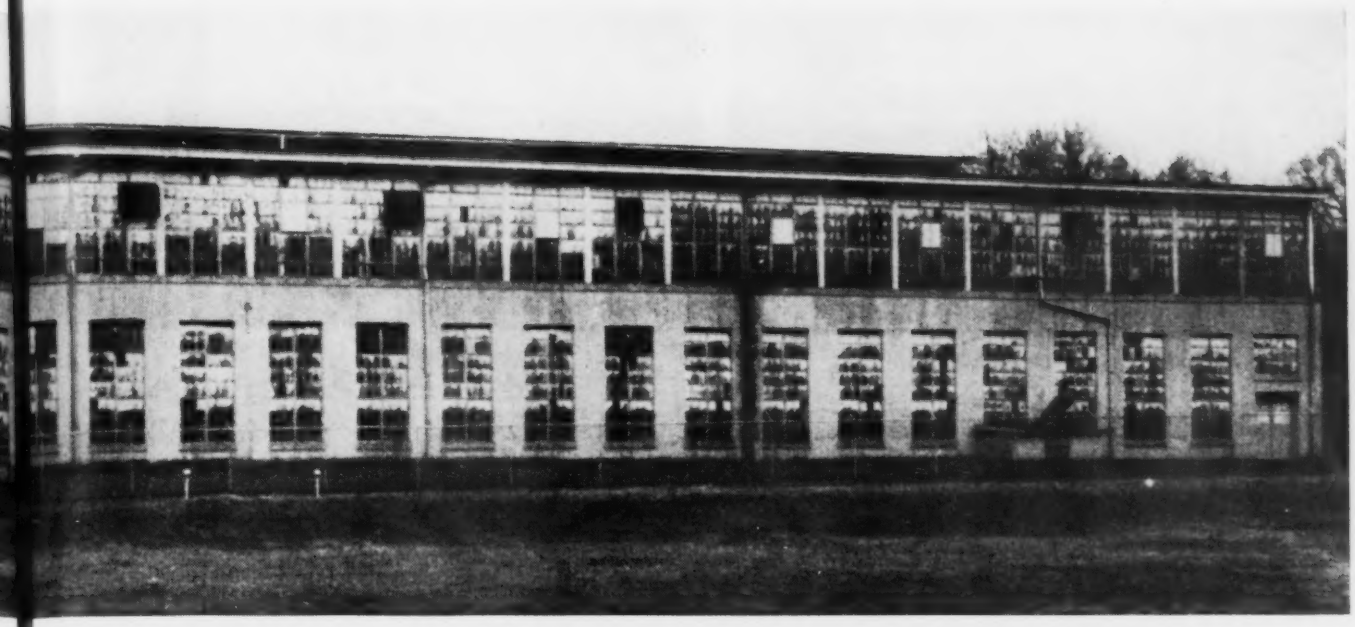
Highland City Mills, Talladega, Ala., occupies a reinforced-concrete and glass building that was already

Long-draft roving frames built by Whitin Machine Works follow gilling on Prince-Smith & Stells gill boxes. Note the width of the clearer boards, indicating considerable spread between the drafting rolls to accommodate long-staple wool. Experimental work is being done on Warner & Swasey pin drafters.

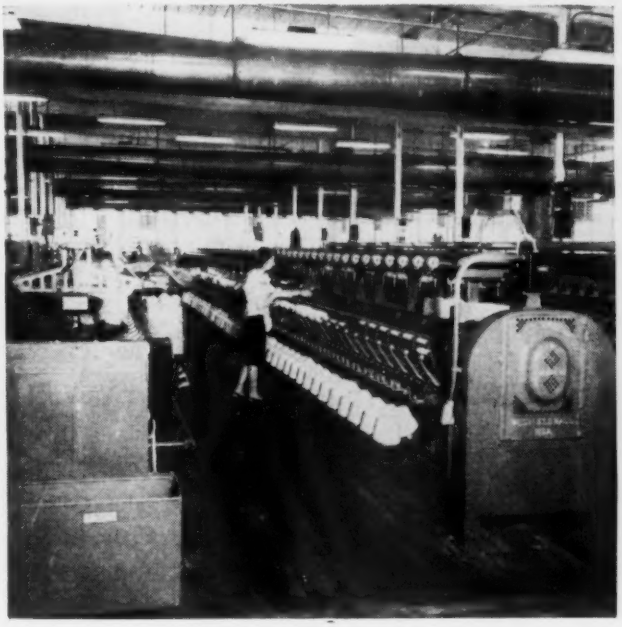
Modified long-draft spinning frames also have a long roller stand for wide adjustment of the drafting rolls. Only white stock is being run at present at Highland City Mills. Spinning frames are driven by individual motors through use of V-belts as seen in the foreground.

NEW WORSTED-YARN MILL
Uses Long-Draft Spinning

HIGHLIGHTS: Highland City Mills, Talladega, Ala., organized to process worsted yarn from wool top —Modified cotton-type long-draft machinery is being used—Modern air-changing system and fluorescent lighting installed in old building.



available. The new mill is producing worsted yarns from wool tops on modified long-draft spinning machinery.



Yarn preparation for shipment is done on Universal Roto-Coner winders, left, and Foster doublers, right. Note the air-changing ducts overhead. Cleanliness and neat appearance throughout the Highland City Mills plant are evident in the photographs shown on these pages.

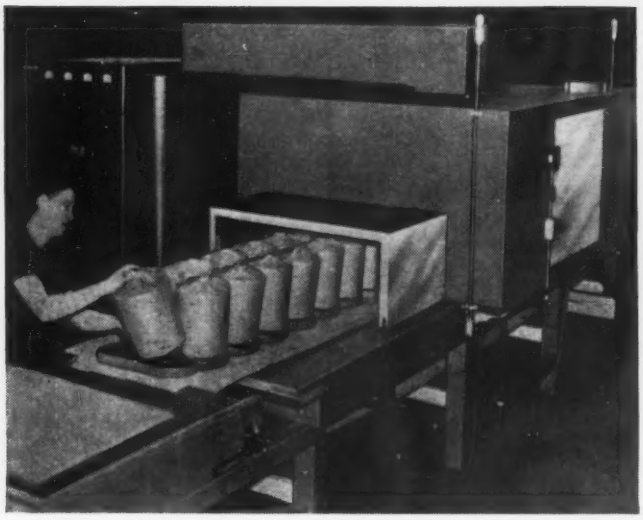
Fluorescent lights and air-changing ducts are shown in this view across the spinning section of the mill. The air-changing system permits control of humidity within close limits and also aids in controlling high temperatures during the summer months.

ONE PHASE of the activity now under way in the worsted branch of the textile industry is illustrated by the establishment of Highland City Mills, Talladega, Ala., for processing worsted yarn from tops on modified cotton-type long-draft machinery. The mill was organized under the name of Coosa Valley Mills, Inc., with David S. Cook, president, and Frank Pate, vice president and treasurer. Effective Nov. 15, 1947, the name was changed.

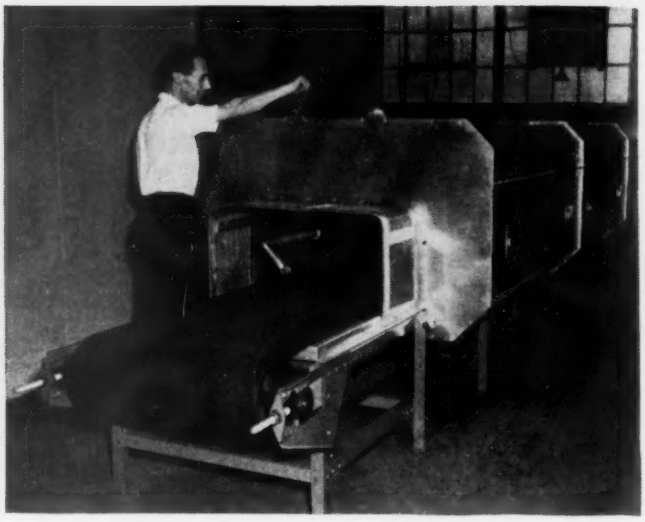
Installation of machinery was started last year in a mill building already available, and production of yarn was begun early in January of this year. Considerable experimenting with various machines is under way, and the final layout of processing machinery is still in a flexible state at the mill.

Basically, the mill is operating on what has been described as Whitin Machine Works' version of the American system of worsted spinning. Processing begins at present on Prince-Smith & Stells gill boxes; the mill is also experimenting with Warner & Swasey gill boxes. The stock is run through Whitin's modified drawing, roving, and spinning frames; and the resulting yarn is packaged for shipment on Universal Roto-Coner winders and Foster doublers.

The reinforced-concrete mill building required no major changes, but fluorescent lighting and an air-changing system were installed.



Cones of tire cord have been twist set for the past 4 yr. in high-frequency ovens such as shown here.



Upper electrode position of this 30-kw. high-frequency oven used for drying textiles is quickly adjusted as shown by the operator.

Many Uses Seen for HIGH-FREQUENCY HEAT

HIGHLIGHTS: *Twist setting accomplished in 5 to 10 min. instead of 2 to 4 hr.—Rayon crepes and tire cord both can be set—Cost ranges from 30 to 91¢ per 1,000 lb.—Wrapped packages or airtight cartons prevent moisture loss—Bobbins rolled while yarn on them is set—Pin trays interfere with high-frequency field—Cotton, wool, nylon also set or dried.*

By T. H. STORY

HIGH-FREQUENCY twist setting of rayon tire cord has been commercially in use by several rayon and tire manufacturers for about 4 yr.

Twist setting is the process of relieving the stresses set up in textile fibers by twisting, which gives the yarn a tendency to kink. The method most commonly used is to steam the yarn in ovens at a dry-bulb temperature of 170° to 180° F. and a relative humidity of about 78% for from about 2 to 4 hr. The length of this steaming period will depend upon the size of the package, the denier and type of yarn, and the amount of twist.

Steaming in vacuum chambers is also employed to a lesser degree. The vacuum chamber shortens the period of exposure but increases the initial cost and complexity of the equipment and the loading and unloading time.

T. H. Story is a member of the Engineering Section, Engineering Products Dept., RCA Victor Div., Radio Corp. of America.

High-frequency twist setting takes advantage of the natural equilibrium moisture in the rayon. By heating the package in the presence of this moisture, the stresses will be as effectively relieved as in a steam box, and the yarn will be balanced or twist-set.

The greatest advantage of high-frequency twist setting is the uniformity of set throughout the package. Particularly with large, dense packages, such as tire cord, steam will not penetrate to the center even after several hours' exposure in a steam box, and the set will vary from the outside to the interior.

Since it is a fundamental characteristic of high-frequency heat that it is uniformly generated throughout any object having homogeneous electrical properties, the same degree of set is obtained at the center of the package as in the outside layers.

The other advantages of high-frequency twist setting are the saving in time and the fact that it changes twist setting from a batch to a production-line process. Depending upon the nature of the yarn and the power concentration used, the twist may be set with from 5 to 10 min. exposure to the electric field.

Like high-frequency cake drying [TW,Jan.'48,p.114], this reduction in time reduces the amount of material tied up in inventory and enables processing to be started almost immediately upon receipt of new material.

CONVEYOR SYSTEM. The application equipment is similar to that for cake drying. The packages are conveyed between flat, plane electrodes on a belt. A typical 15-kw. tire cord installation has electrodes 5 ft. long and 2½ ft. wide. The belt speed is 3 in. a minute. The cones travel two abreast, with one 19-lb. cone every 5¼ in.

One girl loads and unloads the belt. As the conveyor extends several feet outside the heating compartment at both ends, she can load a section of the belt at the entry end, then walk to the exit and unload the heated cones from the belt to a truck.

The electrode system is enclosed in a metal cabinet designed for the double purpose of preventing high-frequency radiation and protection to personnel. There is an opening at each end just large enough to permit the passage of

cones into and out of the electrode area.

The twist setter is much simpler in some respects than the cake dryer. Since very little steam is released, there need be no provisions for removing vapor or preventing condensation.

The cones change but slightly in impedance as they heat and should not dry appreciably; therefore, there is no reason for varying the voltage along the electrode. For 19-lb. cones, a voltage of about 10,000 is normal at a frequency of 10 mc. with electrodes spaced about a foot apart.

PRODUCTION. Production will vary widely with the type of material, size of package, amount of twist, etc. For example, one rayon will set at a temperature of about 170° F., and a 15-kw. generator will set 28,000 to 32,000 lb. of 1100-den. tire cord in a 24-hr. working day. For reasons that are not well understood, it is necessary to heat rayon of a different manufacture to 200° F. to set it; and the 15-kw. generator will set only 16,000 to 18,000 lb. of tire cord per day.

It was found necessary to heat a certain high-twist crepe to 212° F. to balance it, and the 15-kw. generator could set only 10,600 lb. in 24 hr. However, this material was in 1- and 1½-lb. headless packages and required 5 hr. in a steam oven at 170° F. dry bulb, 79% r.h. to set normally.

The cost of high-frequency twist setting will vary considerably, therefore, with the type of yarn being handled. Assuming a power cost of 40¢ per hour for a 15-kw. generator, easily set rayon costs 30 to 33¢ per 1,000 lb.; a more difficult kind, 53 to 60¢ per 1,000 lb.; and small packages of high-twist yarn as much as 91¢ per 1,000 lb.

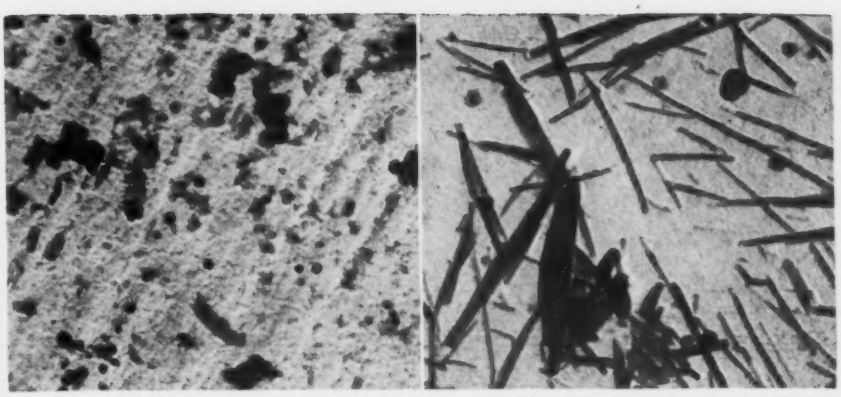
Obviously this is not competitive with steam, particularly when, as in many plants, the steam is a waste product. However, where electric resistance heaters are used to operate the steam boxes, high-frequency heating will cost approximately one-third as much.

As every rayon processor knows, balanced yarn is exceedingly temperamental. If after being twist set, the yarn either gains or loses moisture, it will tend to lose its balance and become lively.

This characteristic has caused a problem in connection with high-frequency twist setting that is still not completely solved for small packages.

In twist setting tire cord, the cones are wrapped ready for shipment in a dry waxed paper. They are heated in the electric field while wrapped; and the paper prevents the loss of any

(Continued on page 208)



***Pigment crystals** on the surface of dyed nylon when examined in the electron microscope appear as shown at left before steaming. After steaming, the crystal size has increased (right) and shape has changed. According to Dr. Hamm, of General Aniline & Film Corp., there is migration from within the fiber to the surface.*

ELECTRON MICROSCOPE

Increases Usefulness in Textiles

***HIGHLIGHTS:** Electron Microscope Society of America considers new techniques at conference—Fibers and dyes give up molecular secrets—New "ultra-microtome" is described.*

NEW KNOWLEDGE of many things vital to life and industry, resulting from work with the electron microscope, was revealed at the first international conference of the Electron Microscope Society of America, in Philadelphia recently. Second only in importance to medical uses, came microscopic studies of textiles and dyes.

Technical advances reported at the conference included experimental development of a new "double lens," increasing the light contrast in photographs made with the RCA electron microscope, and a new light optical viewer providing increased magnification for direct observation of electron-microscope images, both described in a paper by Dr. James Hillier and S. G. Ellis, of RCA Laboratories.

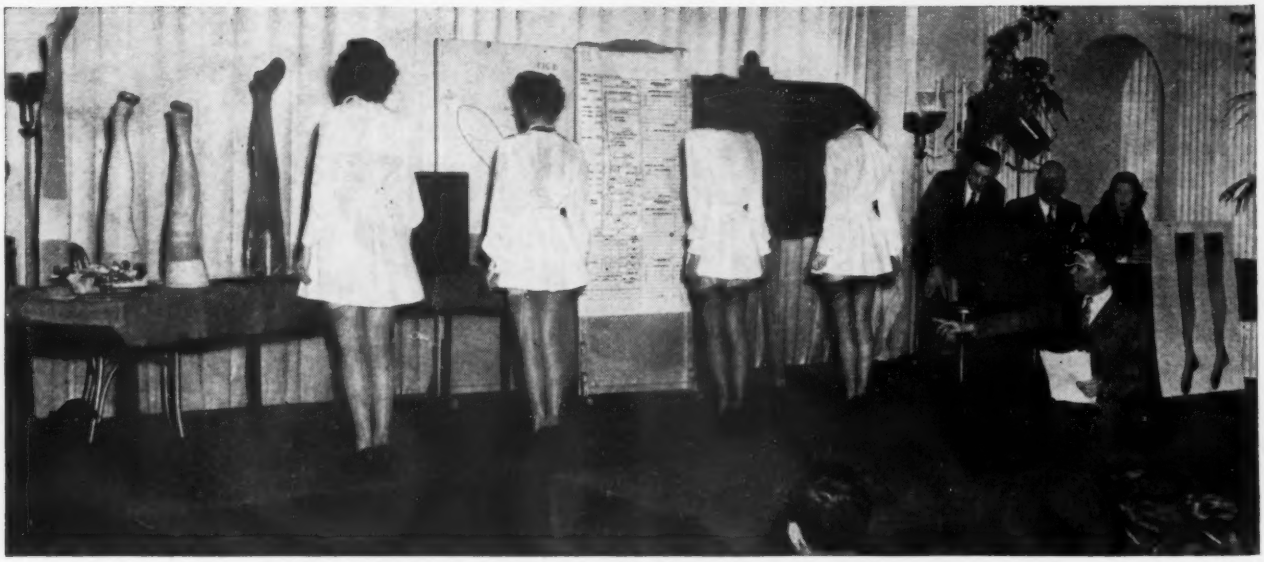
A new electron diffraction camera, using a beam of electrons only a fraction of the diameter of human hair to "thumbprint" minute specimens of crystalline substances and reveal the arrangement of atoms in their molecules, was announced in a paper by Perry C. Smith and Robert G. Picard, of Scientific Instruments Section of RCA Engineering Products Dept. Mr. Smith was later elected president of the society for 1948.

Miss Gloria Seeman and Max Swerdlow, of National Bureau of Standards, reported on studies of the breakdown of wool fiber at various stages in abrasion tests. The electron microscope revealed that the fibers first yield their outer scales, then become pitted, and a second layer of scales wears away on a ridge formation, exposing the soft inner material which is easily torn apart.

DYE ALTERATION Dr. F. A. Hamm, of General Aniline & Film Corp., using the electron microscope to determine why steam-processing tended to alter the color of dyed nylon fiber but increased its fastness to sunlight, found that the steam treatment effected a marked increase in size of the dye crystals and caused some of them to migrate from within the fiber to the surface.

Use of uranium sulphide or platinum as a "shadow-casting" material to obtain three-dimensional effects in electron micrographs was described by Dr. Robley C. Williams and Robert C. Backus, of University of Michigan, who found these materials superior to gold formerly used for this purpose. When the specimen is viewed in the electron microscope, the "shadows" indicate the depth and character of surface details.

Harvy B. Merrill, of Custom Scientific Instruments, Arlington, N. J., and Ernest F. Fullam, of General Electric Co., demonstrated a new "ultra-microtome" developed by the former concern. The device, designed to cut sections of industrial and biological materials only 0.000004 in. thick for study in the electron microscope, whirls a razor-edged blade at the supersonic speed of 800 mph. on a drum rotating at 60,000 rpm.

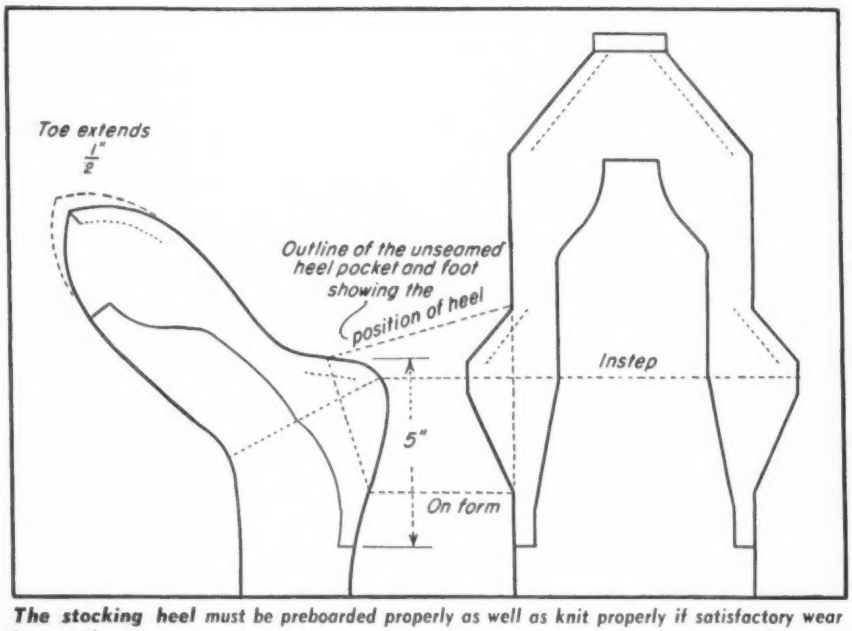


***Forms, models, and charts** demonstrate practicability of new nylon hosiery standards.*

Voluntary Standards Set for FULL-FASHIONED Hosiery

***HIGHLIGHTS:** Minimum construction determined by Independent Association of Stocking Manufacturers—Samples show good correlation with DuPont and U. S. Testing Co. devices—Knitting divided into four parts—Proper procedures must be followed—Simple system quickly identifies proportionate-length hose.*

By W. CHASE IDOL, Jr.



***The stocking heel** must be preboarded properly as well as knit properly if satisfactory wear is to result.*

FULL-FASHIONED HOSIERY manufacturing has taken a step forward with the adoption of voluntary minimum construction standards by members of the Independent Association of Stocking Manufacturers, of Philadelphia. President of the association, which adopted the recommendations of the Joseph C. Cobert Associates following many months of extensive tests, is George D. McKinney who is also president of Jeannette Hosiery Mills, Elkins Park, Pa.

Before the tests were started, it was the opinion of Mr. McKinney that stockings made according to voluntary minimum construction standards should conform with the fit standards of the U. S. Testing Co. and the Nylon Div. of E. I. du Pont de Nemours & Co.

The first approach to the problem by the Cobert Associates was to enlist the aid of the association's 122 full-fashioned member plants. Forty-eight sets of knitting specifications, including all popular gages and deniers, were submitted for analysis. They were separated by gage and denier; and the stocking construction was broken down to the smallest detail for the average needle width and courses per part.

To test the construction formula, samples were made using 30-den. main yarn with 60-den. welt and splic-

ing yarns. The machines were 42 to 51 gage inclusive, set up to make the round-heel construction because it represented the most predominant type stocking made at the time.

After each set of samples was made to conform with the minimum standards, every stocking was given a Rolande test in both sides of the leg and sole and in the center of the afterwelt and toe. Thus, counting courses per inch under an accurate stretch, the Cobert Associates also were able to establish testing standards for the mills having the Rolande system of length and fit control.

PREBOARD TEST. After the samples were looped and seamed, they were pulled on a form corresponding with the dimensions of the average preboarding form. This enabled the testers to see how many of the samples could be preboarded to the same line, and to ascertain the number of stockings that would fit the foot after proper preboarding.

Every stocking was stretched in the gray at the welt, knee, ankle, instep and foot on the Du Pont stretching device. This was done for the purpose of comparison with later tests made in the same way, but on the finished stocking. Analyses of these tests determined if the flare and leg narrowings were in correct proportion per gage, and also if the number of heel widenings and gusset narrowings would produce the desired stretch at the instep and foot.

The preboarding and final boarding of the samples was carefully supervised to make certain that every stocking was boarded to a predetermined line. It is worth noting that while the Rolande and stretch tests made in the grey in some cases revealed considerable irregularity per section, exceptional length uniformity was achieved by careful preboarding and final dyed boarding.

The finished stockings were measured flat to record measurement of the welt, afterwelt, heel, toe, and overall length. The samples were then ready to be given a wearing length and fit test on the Universal Hosiery Fitting Measure of the U. S. Testing Co.

The samples were tested on the average, or "B" form, which corresponds to the measurements of the average American woman as determined by a survey which made detailed measurements of more than 10,000 women in representative sections of the United States. [TW, Mar., '46, p. 125, Sept., '46, p. 149] The form is built flat to facilitate measurements, has detachable toe pieces to measure foot size, a vertical

TABLE A (Part 1)

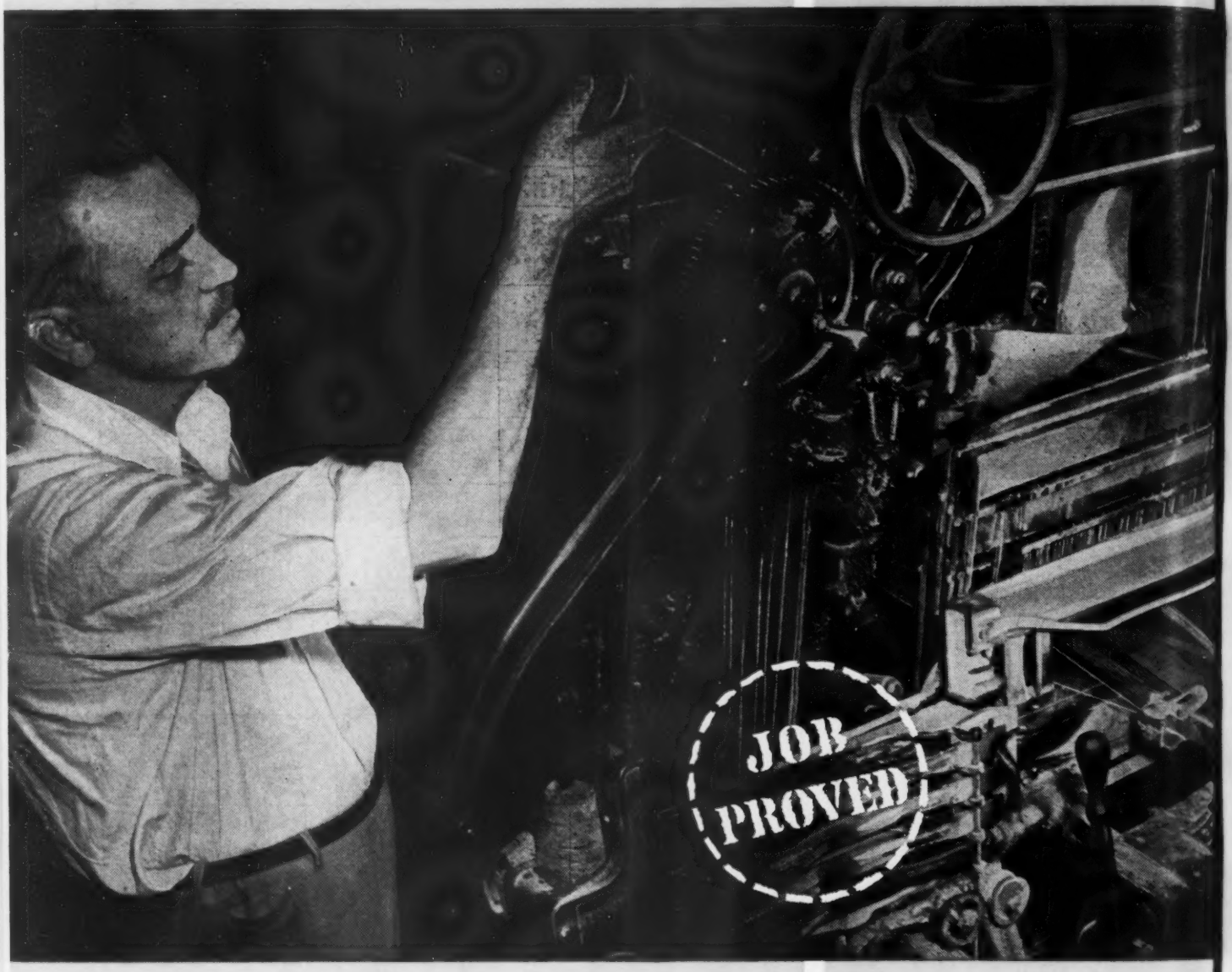
NOTE Based on 14 in. of Needles in All Gage	STANDARD TOP				BOOT				
	Welt Yarn		Welt Total Courses	Afterwelt Total Courses	Main Yarn		Maximum Narrowings		Minimum Total Courses
Gage	Den.	T.p.i.			Den.	T.p.i.	Flare	Calf	
39	60	6½	298	60	40	25	6	31	870
39	60	6½	298	60	30	30	5	31	892
42	60	6½	312	62	40	25	8	33	892
42	60	6½	312	62	30	30	7	33	914
45	60	6½	326	64	40	25	10	35	914
45	60	6½	326	64	30	30	9	35	936
45	60	6½	326	64	20	35	7	35	980
45	60	6½	326	64	20	35	7	35	980
45	40	10	366	76	15	0	6	35	1002
48	60	6½	340	66	30	30	11	37	958
48	60	6½	340	66	30	30	11	37	958
48	60	6½	340	66	20	35	9	37	1002
48	40	10	380	78	15	0	8	37	1024
51	60	6½	354	68	30	30	13	39	980
51	60	6½	354	68	30	30	13	39	980
51	60	6½	354	68	20	35	11	39	1024
51	40	10	394	80	15	0	10	39	1046
54	60	6½	368	70	30	30	15	41	1002
54	60	6½	368	70	30	30	15	41	1002
54	40	10	408	82	20	35	13	41	1046
54	40	10	408	82	15	0	12	41	1068
57	60	6½	382	72	30	30	17	43	1024
57	40	10	422	84	20	35	15	43	1068
57	40	10	422	84	15	0	14	43	1090
60	60	6½	396	74	30	30	19	45	1046
60	40	10	436	86	20	35	17	45	1090
60	40	10	436	86	15	0	16	45	1112
66	60	6½	424	78	30	30	23	49	1090
66	40	10	464	90	20	35	21	49	1134
66	40	10	464	90	15	0	20	49	1156

TABLE A (Part 2)

HEEL SOLE SPLICING					TOE		Std. Top Round Heel "Average" Stocking Size 9½	Construction Reference Number			
Splicing Yarn		Minimum Carrier Widenings	Maximum Gusset Narr.	Size 9½ Minimum Total Courses	Maximum Toe Narr.	Minimum Total Cs. To Loose Cs.	Grand Total Courses in Stocking to Toe Loose Cs.	Gage	Main	Welt	Splicing
Den.	T.p.i.										
60	6½	18	18	414	35	101	1743	39	40	60	60
60	6½	18	18	424	36	103	1777	39	30	60	60
60	6½	20	20	424	37	105	1795	42	40	60	60
60	6½	20	20	434	38	107	1829	42	30	60	60
60	6½	22	22	434	39	109	1847	45	40	60	60
60	6½	22	22	444	40	111	1881	45	30	60	60
40	10	22	22	464	42	117	1951	45	20	60	40
40	10	22	22	474	43	119	2037	45	15	40	40
60	6½	24	24	454	42	115	1933	48	30	60	60
40	10	24	24	464	42	119	1947	48	30	60	40
40	10	24	24	474	44	121	2003	48	20	60	40
40	10	24	24	484	45	123	2089	48	15	40	40
60	6½	26	26	464	44	119	1985	51	30	60	60
40	10	26	26	474	44	123	1999	51	30	60	40
40	10	26	26	484	46	125	2055	51	20	60	40
40	10	26	26	494	47	127	2141	51	15	40	40
60	6½	28	28	474	46	123	2037	54	30	60	60
40	10	28	28	484	46	127	2051	54	30	60	40
40	10	28	28	494	48	129	2159	54	20	40	40
40	10	28	28	504	49	131	2193	54	15	40	40
40	10	30	30	494	48	131	2103	57	30	60	40
40	10	30	30	504	50	133	2211	57	20	40	40
40	10	30	30	514	51	135	2245	57	15	40	40
40	10	32	32	504	50	135	2155	60	30	60	40
40	10	32	32	514	52	137	2263	60	20	40	40
40	10	32	32	524	53	139	2297	60	15	40	40
40	10	36	36	524	54	143	2259	66	30	60	40
40	10	36	36	534	56	145	2367	66	20	40	40
40	10	36	36	544	57	147	2401	66	15	40	40

Stocking construction specifications shown are for knitting full-fashioned stocking that should fit the average American woman.

Makes Dyeing Easy!



SUN TEXTILE MACHINE LUBRICANT...

Cuts Down Spotting in Woolen Mill, Ends Washing and Dyeing Troubles

A well-known woolen mill was plagued by oil spots on high-grade woolens. The oil was applied to open gears, chain-drives and other parts of machines, but a considerable quantity dripped off and spotted the cloth.

These spots could not be removed by ordinary automatic washing, or even by hand spotting. As a result, dye would not "take" on the areas that had been soiled.

A Sun Engineer was consulted and recommended a lubricant, specially developed for this type of application. The Sun textile machine lubricant was adopted and immediately reduced dripping and splashing to a minimum. It washed out easily, and did not affect dyeing. It proved a complete solution to the problem.

Whatever your lubrication problem, the chances are that Sun Engineers and Sun "Job Proved" products can help. Call your nearest Sun office today. Or write Department T3.

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MAKERS OF THE FAMOUS SUN TEXTILE PROCESSING OILS
In Canada: Sun Oil Company, Ltd.—Toronto and Montreal

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INDUSTRIAL PRODUCTS

scale to measure wearing length, and built-in calibrated spring-actuated plungers to evaluate the stretch and recoverability, or fitting qualities, in the vital instep, knee, and welt areas. The results showed that the sample stockings (about 3¼ dozen in all) had excellent fitting qualities, and in no case would be considered poor or unsatisfactory.

The last test to which the samples were subjected was made in a Philadelphia mill on a Du Pont stretching device. Every stocking was found to be well within the tolerance permitted by the Du Pont stretch standards, and the majority was found to stretch to the middle of the standards.

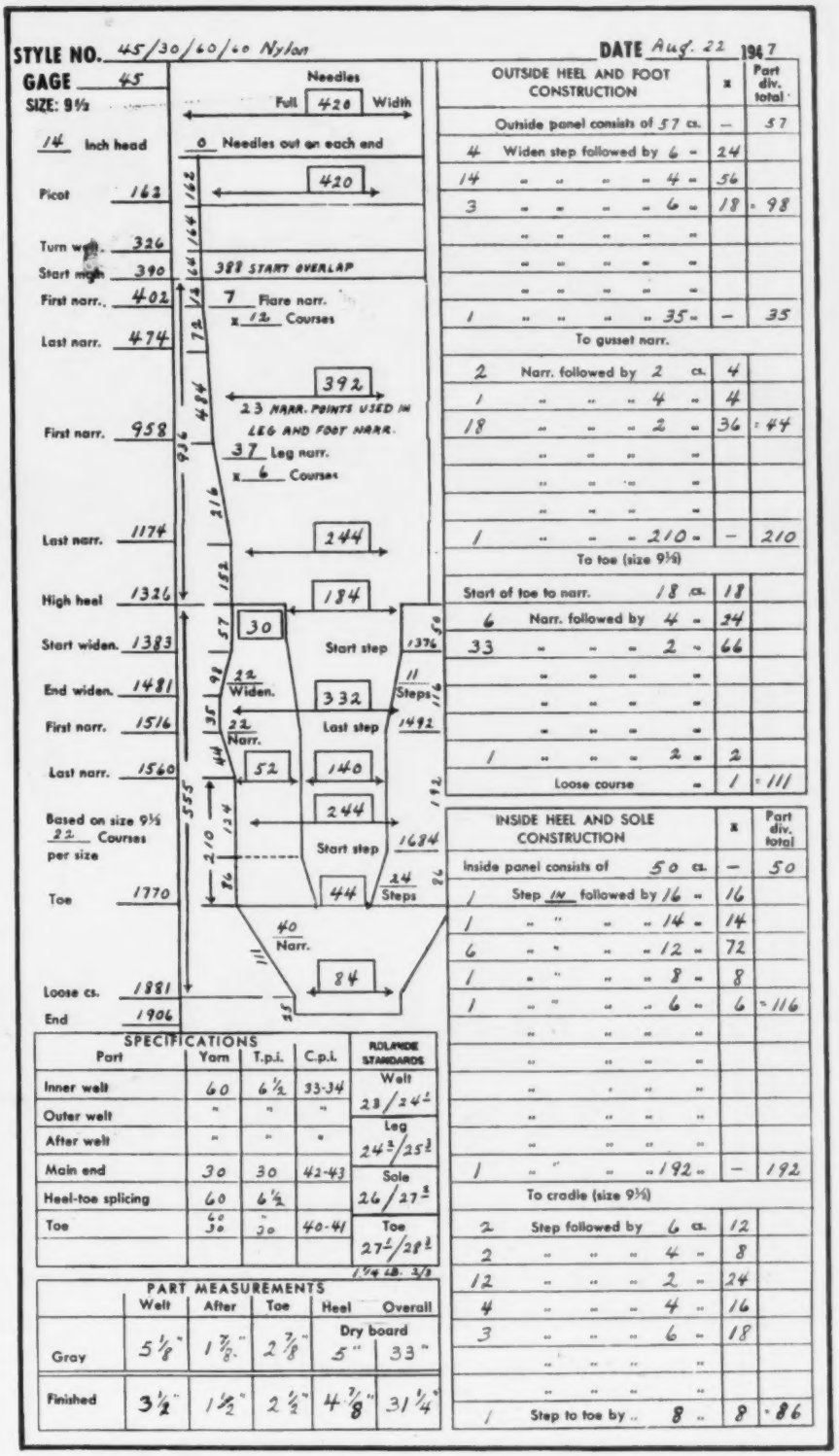
For example, the Du Pont stretch tolerance for the ankle of a 30-den. nylon stocking is from 6 to 7½ in. None of the sample stockings stretched less at the ankle than 6⅜ in. or more than 7⅜ in., with the vast majority stretching between 6¾ and 7 in. The results of stretch tests made at the welt, instep, and foot areas were likewise found to be amenable to the mean of the Du Pont standards.

STANDARD BASIS. The results of all tests made on the samples provided the basis for development of the voluntary minimum construction standards. This formula was used to project the minimum construction standards into all gages and deniers illustrated in the specifications* issued by the Independent Association of Stocking Manufacturers.

Some very interesting facts, reported the Cobert Associates, were revealed in a preliminary survey by comparing final knitting specifications with those submitted by the mills before the study was undertaken.

For example, at the courses per inch concerned, the average of the specifications submitted was found to be a little wider than necessary at both the knee and ankle areas and not quite wide enough across the instep and foot. While the majority of stockings made to such specifications could prove, upon being tested, to be within the limit of the Du Pont stretching tolerance, some of the stockings, due to variable knitting conditions, could be slightly loose at the knee and ankle, and others a little tight across the instep and foot, when worn by the average woman. Furthermore, in spite of the effect of preboarding in shaping the heel, when the pocket has not

(Continued on page 238)


STYLE NO. 45/30/60/60 Nylon
DATE Aug. 22 1947
GAGE 45
SIZE: 9½
Needles
Full 420 Width
14 Inch head
0 Needles out on each end
Picot 162
Turn welt 326
Start high 390
First narr. 402
Last narr. 474
First narr. 958
Last narr. 1174
High heel 1326
Start widen. 1383
End widen. 1481
First narr. 1516
Last narr. 1560
Based on size 9½
22 Courses per size
Toe 1770
Loose cs. 1881
End 1906
420
388 START OVERLAP
7 Flare narr.
x 12 Courses
392
23 NARR. POINTS USED IN LEG AND FOOT NARR.
37 Leg narr.
x 6 Courses
244
184
30
Start step 1376
22 Widen.
11 Steps
332
Last step 1492
22 Narr.
52
140
244
Start step 1684
24 Steps
44
40 Narr.
84
OUTSIDE HEEL AND FOOT CONSTRUCTION
Outside panel consists of 57 cs. — 57
4 Widen step followed by 6 " 24
14 " " " " 4 " 56
3 " " " " 6 " 18 = 98
1 " " " " 35 " — 35
To gusset narr.
2 Narr. followed by 2 cs. 4
1 " " " 4 " 4
18 " " " 2 " 36 = 44
1 " " " 210 " — 210
To toe (size 9½)
Start of toe to narr. 18 cs. 18
6 Narr. followed by 4 " 24
33 " " " 2 " 66
1 " " " 2 " 2
Loose course — 1 = 111
INSIDE HEEL AND SOLE CONSTRUCTION
Inside panel consists of 50 cs. — 50
1 Step 14 followed by 16 " 16
1 " " " 14 " 14
6 " " " 12 " 72
1 " " " 8 " 8
1 " " " 6 " 6 = 116
1 " " " 192 " — 192
To cradle (size 9½)
2 Step followed by 6 cs. 12
2 " " " 4 " 8
12 " " " 2 " 24
4 " " " 4 " 16
3 " " " 6 " 18
1 Step to toe by 8 " 8 = 86
SPECIFICATIONS
Part | Yarn | T.p.i. | C.p.i. | ROLANDE STANDARDS
Inner welt | 60 | 6½ | 33-34 | Welt 23/24
Outer welt | " | " | " |
After welt | " | " | " | Leg 24½/25½
Main end | 30 | 30 | 42-43 | Sole 26/27½
Heel-toe splicing | 60 | 6½ | | Toe 27½/28½
Toe | 60 30 | " 30 | 40-41 |
1/4 LB. 3/3
PART MEASUREMENTS
Welt | After | Toe | Heel | Overall
Dry board
Gray | 5⅛" | 1⅞" | 2⅞" | 5" | 33"
Finished | 3½" | 1½" | 2½" | 4⅞" | 31¼"

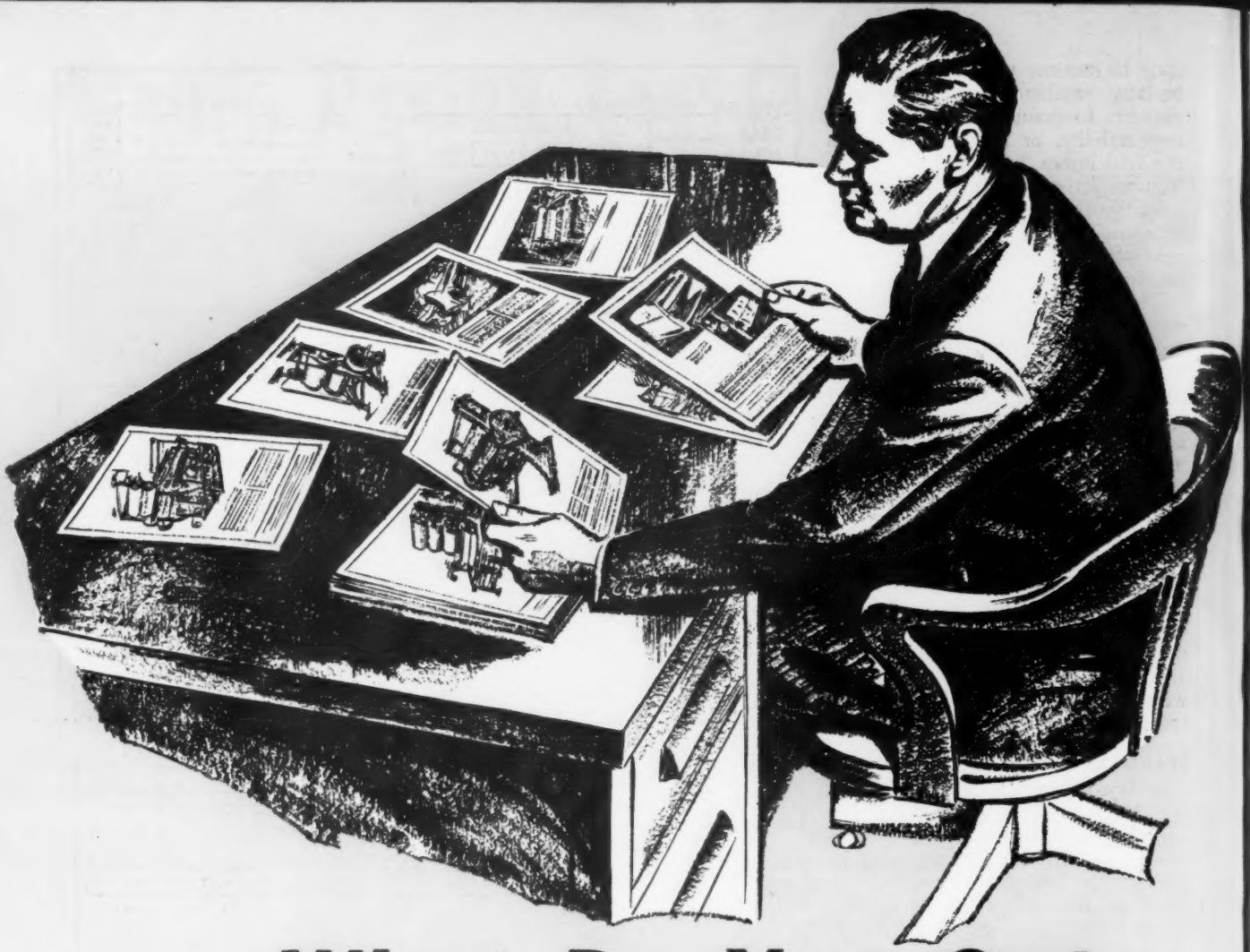
***Specification form** shown gives details for standard construction of 9½ size knit on 45-gage machine, round-heel construction.*

TABLE B

Stocking Part	Flat Length	Plus Minus Tolerance
Standard Over-all Length	31¼ in.	1 in.
Heel	4⅛ in.	⅜ in.
Toe	2½ in.	⅛ in.
Standard Top (combined welt and afterwelt)	5 in.	¼ in.
Standard Wearing Length	26½ in.	1 in.

***Flat measurements and tolerances** must be coupled with correct manufacturing and finishing.*

* The voluntary minimum construction standards issued by the Independent Association of Stocking Manufacturers is copyrighted and may not be reproduced in whole or in part without permission of the association. Copies of the recommendations may be obtained from the association office, Market Street National Bank Bldg., Philadelphia, Pa.



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Whether you are re-equipping your present mill or building a new one, you will want to know what you will get besides machines when you place your order.

At Butterworth you will get all the advantages of 127 years experience in the wet end of textile finishing—an experience unique in the Textile Industry.

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(1) Study your production problems and recommend the proper equipment for better, faster, more economica production.

(2) Estimate the total cost to you o modern machines, installed an running.

(3) Design, build and install a singl machine or a complete range fo bleaching, boiling-out, drying, ca endering and dyeing.

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BASIC FIBER CONSUMPTION DATA, UNITED STATES, 1935-1947

	Cotton	Wool [1]	Silk	Flax	Rayon	Other Synthetic Fibers [2]	Sub-total 1st 6 cols.	Jute	Hard Fibers	Hemp	Grand total all fibers
MILL CONSUMPTION[3], TOTAL											
Million pounds											
1935-39 Average	3,280	394	63	12	335	[6]	4,084	154	389	3	4,630
1942	5,612	637	[7]	25	621	24	6,919	128	445	19	7,511
1946[10]	4,823	771	16	20	875	53	6,558	169	363	5	7,095
1947[11]	4,681	722	3	12	997	58	6,473	92	500	4	7,069
Percent											
1935-39 average	71	9	1	[8]	7	[8]	88	3	9	[8]	100
1942	75	9	[8]	[8]	[8]	92	2	2	6	[8]	100
1946[10]	68	11	[8]	[8]	12	1	92	3	5	[8]	100
1947[11]	66	11	[8]	[8]	14	1	92	1	7	[8]	100
FINAL CONSUMPTION[4], TOTAL											
Million pounds											
1935-39 average	3,203	417	65	41	331	[6]	4,057	775	453	3	5,288
1942	5,420	646	[7]	31	607	24	6,728	426	491	19	7,664
1946[10]	4,470	743	16	31	830	53	6,143	749	419	5	7,316
1947[11]	3,822	684	4	21	914	58	5,503	675	561	4	6,743
Percent											
1935-39 average	61	8	1	1	6	[8]	77	14	9	[8]	100
1942	71	9	[8]	[8]	8	[8]	88	6	6	[8]	100
1946[10]	61	10	[8]	1	11	1	84	10	6	[8]	100
1947[11]	57	10	[8]	[8]	14	1	82	10	8	[8]	100
FINAL CONSUMPTION, PER PERSON											
Pounds											
1935-39 average	24.8	3.3	0.5	0.3	2.6	[6]	31.5	6.0	3.5	[9]	41.0
1942	40.2	4.8	[9]	0.2	4.5	0.2	49.9	3.2	3.7	0.1	56.9
1946[10]	31.7	5.3	0.1	0.2	5.9	0.4	43.6	5.3	3.0	[9]	51.9
1947[11]	26.8	4.8	[9]	0.1	6.4	0.4	38.5	4.7	3.9	[9]	47.1
TEXTILE EXPORTS[5]											
Million pounds											
1935-39 average	113	2	1	[6]	5	[6]	121	20	7	[7]	148
1942	189	14	[7]	[6]	14	[6]	217	25	6	[7]	248
1946[10]	349	54	[7]	[6]	47	[6]	450	44	27	[7]	521
1947[11]	793	57	1	[6]	83	[6]	934	56	15	[7]	1,005
TEXTILE IMPORTS[5]											
Million pounds											
1935-39 average	41	25	3	29	1	[6]	99	641	72	[7]	812
1942	7	22	[7]	6	[7]	[6]	35	323	53	[7]	411
1946[10]	15	26	1	11	1	[6]	54	624	83	[7]	761
1947[11]	5	20	1	9	1	[6]	36	638	76	[7]	750

[1] Including mohair, camel hair, etc.; scoured equivalent weight. [2] Includes nylon, Aralac, saran, Vinyon, and Fiberglas. [3] Mill consumption of cotton and wool; domestic shipments plus imports for consumption of rayon, imports for consumption of silk, jute, and hard fibers; domestic production plus imports for consumption less exports of flax and hemp; consumption of other synthetic fibers based on domestic sales, etc. [4] Consumption of raw fiber plus addition and minus subtraction for imports and exports respectively of fiber manufactures. [5] Of principal items only, generally. [6] No data, but probably inconsequential. [7] Less than 500,000 lb. [8] Less than 0.5%. [9] Less than 0.05 lb. [10] Preliminary. [11] Partly estimated.

FIBER CONSUMPTION Shows Cotton Dominance, Rayon Rise

HIGHLIGHTS: *Total of all fibers and fiber products used by final consumers in U. S. triples from 2,209,600,000 lb. in 1892 to 6,761,300,000 lb. in 1947—Per-capita figure gains from 33.8 lb. in 1892 to 47.1 in 1947—Cotton's share highest in war years—Rayon and other synthetics up to 15% of total fiber use in 1947.*

By ROBERT B. EVANS and BARKLEY MEADOWS

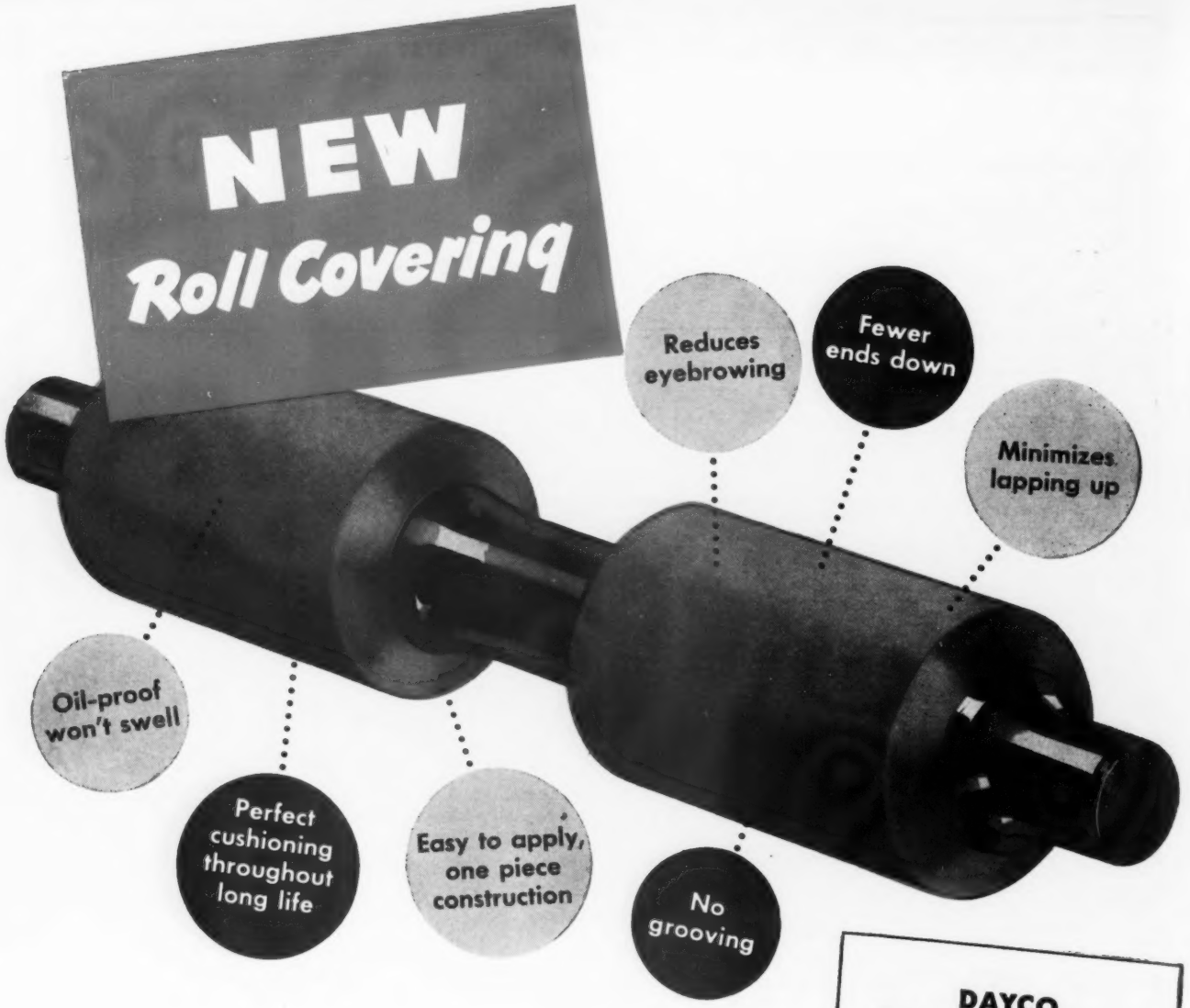
Southern Regional Research Laboratory, New Orleans, La.*

TRENDS IN THE CONSUMPTION of textile fibers in the United States are disclosed in a study just completed at the Southern Regional Research Laboratory of the U. S. Department of Agriculture. The study provides useful indexes of the growth of the textile industry and of the demand for its products. It answers such questions as: Is total and per capita consumption of cotton and of other fibers increasing or decreasing? What changes are taking place in kinds of fibers used? How important are exports and imports in America's textile economy?

Basic fiber consumption data for the last few years are given in the accompanying table. *Mill consumption* in this table obviously refers to the quantities of raw fibers processed by domestic mills. *Final consumption* refers to the quantities of fibers made available for final use by ultimate consumers in the United States, as calculated by adjusting mill-consumption figures by subtracting the quantities of fibers exported and adding the quantities imported in the form of yarn, cloth, and other textile products.

Three notable trends during the last 50 yr. in the aggregate consumption of fibers in the United States are shown in Fig. 1. (See curve for "total - all fibers.") First, a marked upward trend from the 1890's to World War I is seen; second, an only slightly rising trend between World Wars I and II; and third, a sharply upward trend after 1939. Total final consumption of all textile fibers averaged 2,500,000,000 lb. per year during 1895-99, 4,600,000,000 lb. per year during 1915-19, and 5,300,000,-

* One of the laboratories of the Bureau of Agricultural & Industrial Chemistry, Agricultural Research Administration, U. S. Dept. of Agriculture.



Specially designed for running synthetic and natural fibers, the new red Dayco Type "SE" Roll Covering processes synthetics with greater uniformity, with less lapping up and practically no ends down. Not affected by heat or humidity, The Dayco Type "SE" Roll Covering will give the same uniform service throughout its extremely long life. Remember, whether you're running cotton, wool or synthetics there's a mill-proved Dayco especially engineered for your frames. For complete information write Dayton Rubber, Dayton, Ohio, or *Textile Division—Main Sales Office, Woodside Bldg., Greenville, South Carolina.*

DAYCO ROLL COVERINGS
are available for drawing all types of fibers

Whether your frames are equipped with flat or revolving clearers, there is a specially engineered Dayco for maximum results.

TYPE "C" for revolving clearers. Precise, accurate accounting records show the cost per hour of operation is less—with Daycos.

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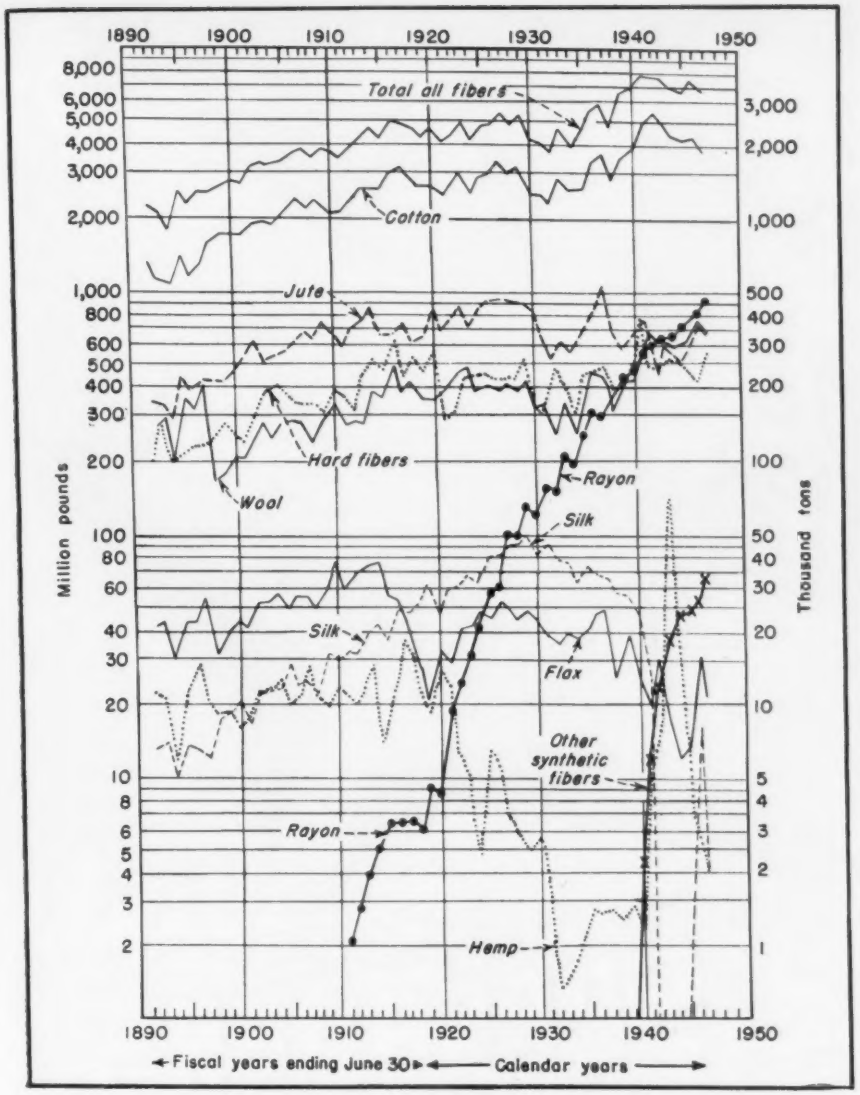

Fig. 1. "Final consumption" of fibers in the U. S. by years from 1892 to 1947 is shown above. These figures are calculated on mill consumption plus the fiber equivalent of imports and minus the fiber equivalent of exports. Data is charted on a ratio scale, in which equal vertical distances show equal percentage changes.

000 lb. during 1935-39; then climbed to an all-time peak of more than 7,600,000,000 lb. each year during 1941, 1942, and 1943. After 1943, the final consumption total declined to 6,800,000,000 lb. in 1945, rose to a peacetime record of 7,300,000,000 lb. in 1946, and then declined, according to preliminary estimates, to about 6,700,000,000 lb. in 1947.

Although the quantity of fibers going to final consumers declined last year, that reduction was offset by greatly increased exports; and the nation's textile mills processed just as much fiber, about 7,000,000,000 lb., as in 1946. This quantity compares with the record mill consumption total of 7,500,000,000 lb. reached in 1942 and with a prewar average of only 4,600,000,000 lb. per year during 1935-39.

By far the most important fiber in the U. S. textile economy is cotton, which is used more than all other fibers combined (Fig. 2). Cotton's share of the total textile market has been declining, however, both on the basis of mill and of final consumption. It comprised only 66% of the total *mill consumption* of all fibers in 1947 as compared with 68% in 1946, 75% in 1942, and 71% during 1935-39. Cotton's share of the *final consumption* of fibers was only 57% in 1947 as compared with 61% in 1946, 71% in 1942, and 61% during 1935-39.

Consumption of cotton has followed about the same trend as the total consumption of all fibers (Fig. 1). Although cotton consumption in 1947 was substantially smaller than during the peak year of 1942, it was still much larger than before the war. In actual quantities, mills used up an estimated 9,800,000 bales (480-lb. net) of cotton in 1947 as compared with 10,000,000 bales in 1946. Of these totals, about 8,000,000 bales in 1947 and about 9,300,000 bales in 1946 were left for consumers in this country after shipments of cotton out of the country in the form of cotton textiles.

Probably the most significant recent trend in fiber consumption has been the rapidly increasing importance of rayon and other synthetic fibers. Rayon climbed steadily from an average mill consumption of 335,000,000 lb. per year during 1935-39 to an estimated total of 997,000,000 lb. in 1947. Rayon comprised 14% of the fiber made available for final consumers in the United States in 1947 as compared with 11% in 1946 and only 6% during 1935-39. Consumption of other synthetics, including nylon, Aralac, saran, Vinyon, and Fiberglas, is expected to reach the respectable total of about 58,000,000 lb. in 1947, as compared with an average of probably not more than 1,000,000 to 2,000,000 lb. per year during 1935-39. These synthetics have comprised 1% of the total during the last 2 yr. The synthetic fibers are unique in the continued, steep upward trend which characterize their consumption (Fig. 1).

Unlike cotton, consumption of wool in 1946 and 1947 has been at levels equaling or exceeding the record set during World War II. Mill consumption of wool and similar fibers, including mohair and camel's hair, totaled 771,000,000 lb. (scoured basis) in 1946 and an estimated 722,000,000 lb. in 1947, as compared with a wartime peak of 671,000,000 lb. in 1941 and a prewar average of 394,000,000 lb. per year during 1935-39. In 1947 wool comprised 11% of the aggregate mill consumption of all fibers as compared with 9% before the war. The United States has usually imported more wool textiles than it exports, but the reverse has been true since 1942. Consequently, the quantities of wool made available for final consumption since 1942 have been slightly smaller than the quantities consumed by mills.

Although silk and flax are well-known textile fibers, neither accounted for as much as 1% of the aggregate consumption of textile fibers in 1947. Silk imports have been resumed on a limited scale since the end of World War II, but silk consumption was already declining rapidly at the beginning of the war under the impact of competition from rayon and nylon. Somewhat more flax is currently being used than silk, but the quantity is small. Flax consumption has followed a downward trend since before World War I.

(*Continued on page 233*)

Each pin in the map represents a mill where patented Hunt Spreaders are in use. More than 200 such installations have been made — often as many as 1000 units in one mill.

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• ADD YEARS TO LOOM LIFE •

Recognition of Greater Loom Efficiency Through Spreader Installation is Industry-Wide

Installations of Hunt Spreaders have proved, in many of the industry's leading mills, that addition of Spreaders to looms, together with modernization, has effected startling increases in production — sometimes as much as *18% greater than when the looms were new.*

To supply the tremendous demand thus created for patented Hunt Spreaders, the plant and personnel at Hunt Machine Works have been expanded more than 1000 percent in the past few years.

The Hunt Spreader is no "Johnny-come-lately." For more than five years now, the Spreader principle has been tested and proven. Installation on looms provides stability, adds needed bearings to crankshaft and camshaft, and reduces destructive vibration. Increased speed is made possible. Maintenance costs are lowered.

The patented Hunt Spreader is, in loom production, a *Proven Factor.*

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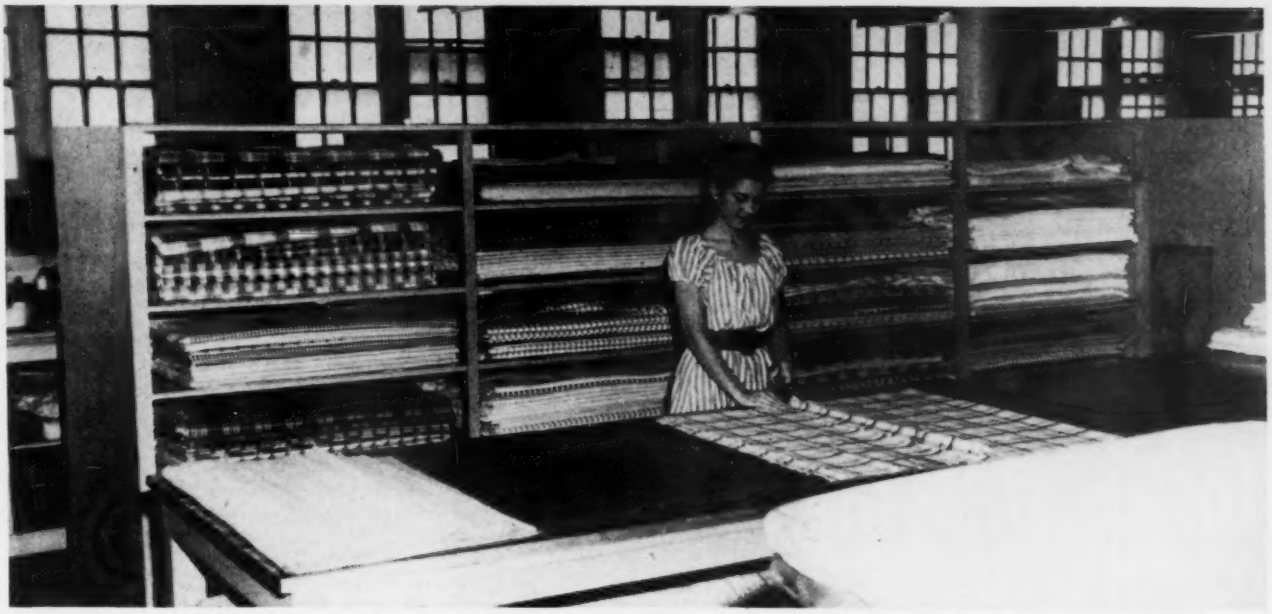
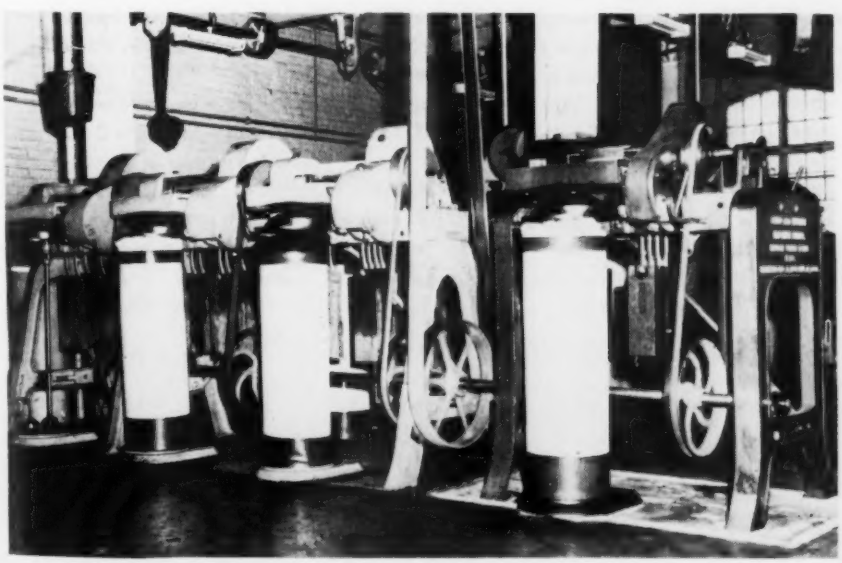


***Hundreds of sample fabrics** developed in the pilot plant are kept on hand in this large sample and display room. By means of an efficient cross-filing system, a particular sample and the technical information pertinent to it can be quickly supplied.*

New Department Speeds FABRIC DEVELOPMENT

***HIGHLIGHTS:** An adequate designing department is used to develop style fabrics at Dan River Mills, Inc.—Diversified machinery enables the mill's pilot plant to process a variety of fibers.*

By P. M. THOMAS
Associate Editor, TEXTILE WORLD

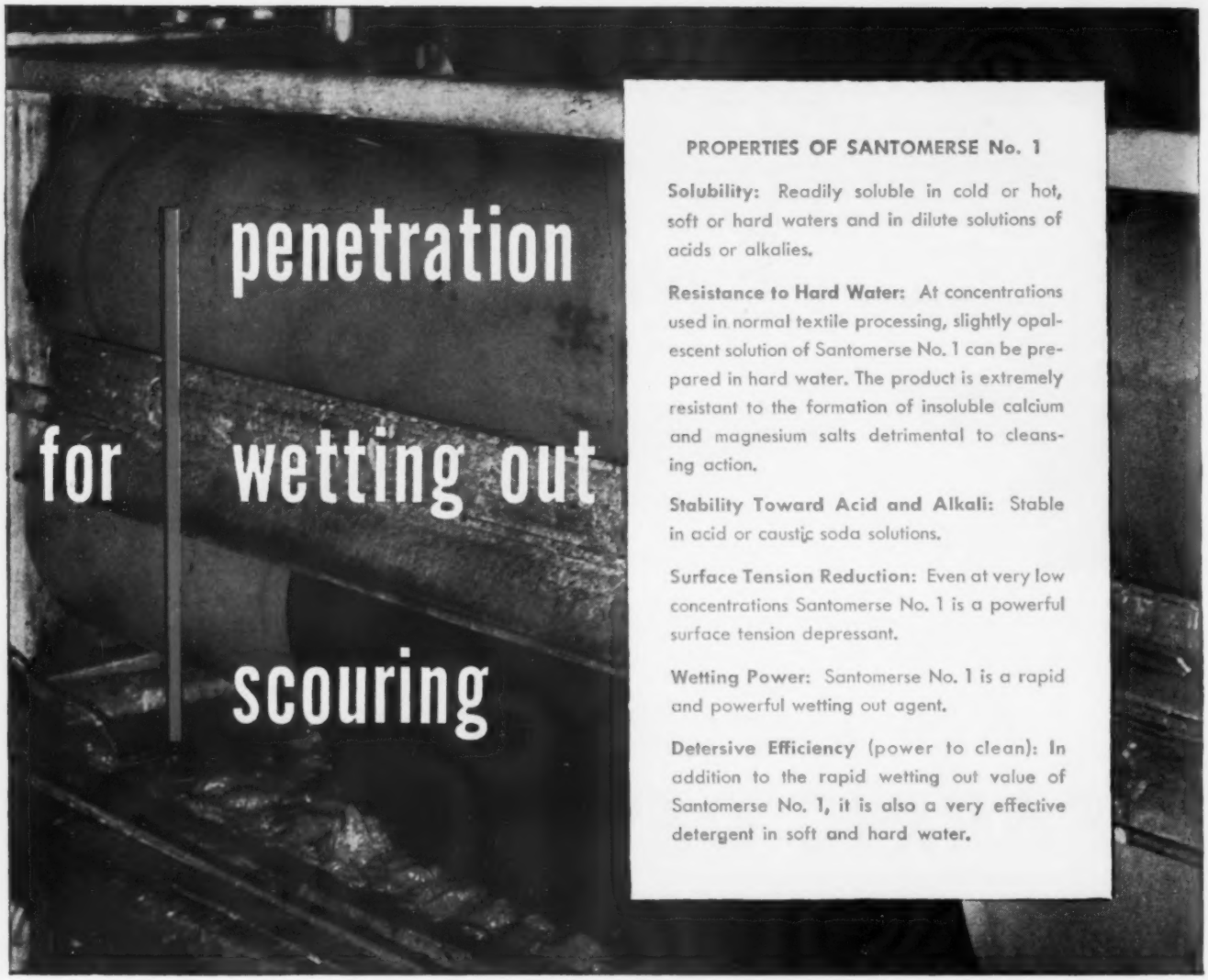


***Four single drawing heads,** each of a different drafting system, are used in Dan River Mills' pilot plant for processing all the major natural and synthetic textile fibers.*

THE PRODUCTION of style fabrics, keyed to the newest fashion requirements and adapted to intelligent and efficient merchandising, is now recognized as one of the most important problems of an integrated textile organization. To meet the continuing shifts in fashion, or to anticipate them to a degree that will permit the manufacture and delivery of fabrics within the time limits that style demands, the modern fabric mill must have effective coordination between its merchandising staff and its production personnel.

The solution to this problem has been sought by most mills in the creation of a separate department, usually known as the designing department, to function between the selling and manufacturing divisions. Such a designing department, operating along the proper lines, can contribute a great deal to the quality and styling of the mill's fabrics and can prevent many "headaches."

So important is this phase of textile manufacturing regarded at Dan River Mills, Inc., Danville, Va., that some years ago this company set up a large designing department and provided it with adequate personnel and manufacturing equipment, so that



PROPERTIES OF SANTOMERSE No. 1

Solubility: Readily soluble in cold or hot, soft or hard waters and in dilute solutions of acids or alkalies.

Resistance to Hard Water: At concentrations used in normal textile processing, slightly opalescent solution of Santomerse No. 1 can be prepared in hard water. The product is extremely resistant to the formation of insoluble calcium and magnesium salts detrimental to cleansing action.

Stability Toward Acid and Alkali: Stable in acid or caustic soda solutions.

Surface Tension Reduction: Even at very low concentrations Santomerse No. 1 is a powerful surface tension depressant.

Wetting Power: Santomerse No. 1 is a rapid and powerful wetting out agent.

Detersive Efficiency (power to clean): In addition to the rapid wetting out value of Santomerse No. 1, it is also a very effective detergent in soft and hard water.

Improved SANTOMERSE Nº 1

Improved Santomerse No. 1 is particularly valuable in textile processing because it combines three important properties in one agent . . . penetration, wetting out and scouring (cleansing).

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The high detergency and easy rinsing of Santomerse No. 1 make it an ideal scouring agent for all fibres. Its neutral character prevents fibre injury and, since Santomerse No. 1 is chemically stable, it may be used in either acid or alkaline operations.

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fabric development could be carried on continuously without imposing upon the time and equipment of the regular mill divisions running on straight commercial production.

This separate manufacturing unit, known as the Dan River pilot plant, is used exclusively by the designing department. It is fully equipped with the latest types of machinery for the manufacture of yarns and for the weaving of these yarns into style fabrics of practically any requirements.

MANY FIBERS USED. In the yarn pilot plant, experiments in the manipulation of all types of textile fibers are carried on. Among the fibers, natural and synthetic, that are experimented with more or less continuously are as follows: cotton, wool, azlons, ramie, flax, Vinyon, nylon, and acetate and viscose rayon. All new synthetic fibers, as soon as experimental quantities are available, are put to use to determine their characteristics and adaptability to cloth manufacture.

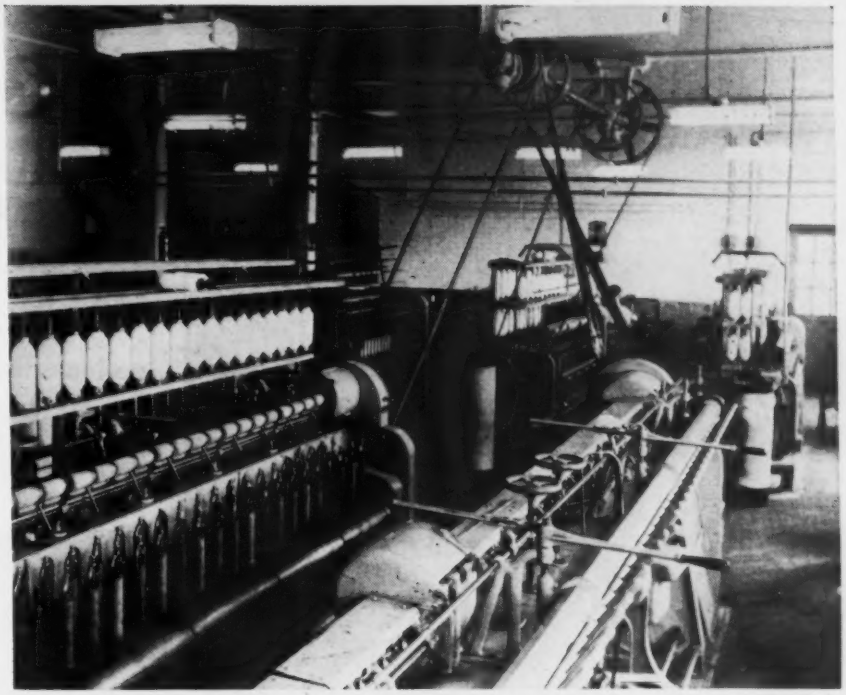
The pilot-plant machinery is housed on a single floor, with a partition between carding and spinning operations and weaving. On an adjacent floor are the designing-staff offices and a sample-display room.

Operation of the pilot plant is only one phase of the functions of the designing department. The primary purposes of the department have been defined as follows:

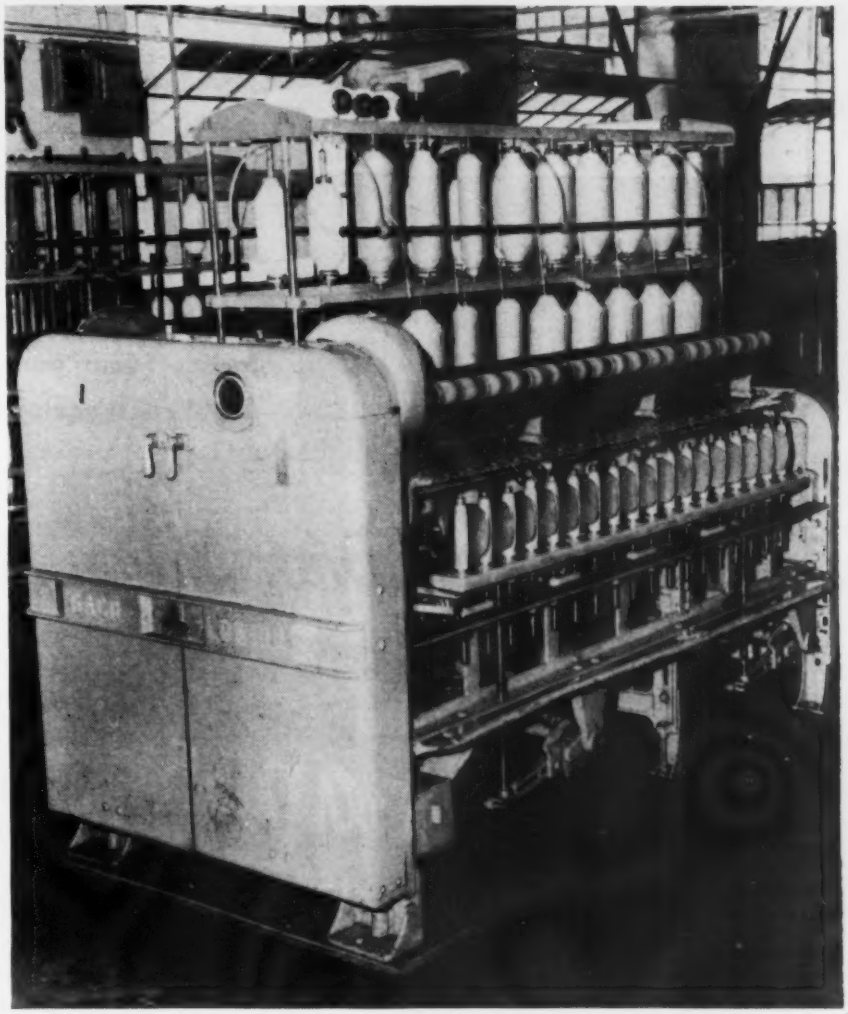
1. To act as the recognized authority as to the correctness and accuracy of weaves, drafts, and other design specifications for all fabrics produced in the mill;
2. To make sample fabrics requested by the selling division quickly and without interference with regular mill operations; and
3. To engage actively in the development of new fabrics, such as originating or devising new yarns, blends, weaves, color schemes, etc.

If these primary purposes are broken down into specific functions, it will be seen that the designing department is a sort of central nerve system by which a vast amount of data relating to style-fabric manufacture is collated from many sources, especially from the selling division, and transmitted to the various operating sections of the mill.

The more important of these specific functions may be summarized as follows: (1) Designing and weaving sample warps, (2) finishing samples, (3) making up sample-display and reference cards, (4) making up new style specifications, (5) checking color standards, and (6) preparing samples for shipment.



***The gear head** of the uncreeled roving frame in the foreground is located in the middle of the machine. Stock is processed by two different drafting systems on this frame and also on the creeled roving frame in the foreground to the left.*



***Three spinning frames** of 36 spindles each, with three different drafting systems, are employed to spin the wide range of yarn numbers used by the designing department. A 36-spindle twister, not shown, is used for plying yarns.*

"You say I owe a lot of my good looks to Swift's Soaps?"
"You sure do. We've stepped up the appearance of all our fabrics since we started using Swift's Soaps for scouring, dyeing and fulling."
"I understand Swift is one of the largest producers of the materials that go into soap. They have what it takes to make quality soaps for every textile need."
"Right. Another thing to remember is that Swift's Soaps are formulated by one of the world's best-equipped fats and oil laboratories."

There's a Swift Distribution Point near you

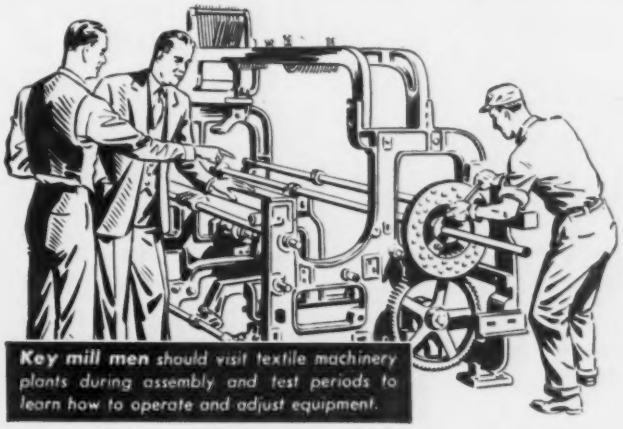
Swift's Soaps
for every textile use

Vertex Flakes
557 Flakes
White Ribbon Flakes
Wool Flakes

In barrels and bags

SWIFT & COMPANY
Soap Department,
Chicago 9, Ill.

To maintain good relations, management should exercise its prerogatives and not confine beneficent policy changes to those fought out over the bargaining table.



Key mill men should visit textile machinery plants during assembly and test periods to learn how to operate and adjust equipment.

HUMAN ENGINEERING Is Stressed by ASME

HIGHLIGHTS: *Resistance to economic and engineering advances can be lessened by proper relations—Attractive environment must be provided to draw workers, lessen turnover—Training of lowest level of management is most important—Employee enlightenment can facilitate technological changes.*

By HOWARD KNOWLTON, *New England Editor, TEXTILE WORLD*

CURRENT WEAKNESS in labor-management relations and procedures for their improvement were frankly discussed in a recent meeting in Boston of textile executives and engineers. The meeting was held under the chairmanship of A. B. Studley of SKF Industries, Inc., and the sponsorship of the Textile Div. of the American Society of Mechanical Engineers.

J. R. Mason, vice president of Millville Mfg. Co., urged analysis of all management functions, logical assignment and follow through, formulation of major policies to assure continuity and uniformity in operations, and closer ties between top management and various supervisory levels. Personalities should not dictate the form of organization, and strong top leadership must prevent personality clashes and subsequent organization breakdowns, he stated. All management levels must understand the duties and responsibilities of others. Clear-cut distinction between line and staff functions is essential. Staff executives act in advisory capacity. Line executives take orders from above and issue them to the organization below. If staff officers wangle their way into the chain of command, early indications of later discord thus appear.

Concise statements of company policy should be distributed and also be available on demand, Mr. Mason recommended; and suggestions on these should be welcomed. More complete cooperation will result. It is poor business to confine changes in company policies to those fought out over the collective-bargaining table. If it wishes to maintain good relations, management must begin to exercise its prerogatives. Closer ties between top and line management are needed. Unless management acts immediately to bid for its first-line supervisors, the cause may well be lost. The Taft-Hartley labor act cannot by printed word strengthen this tie. Only top management can really make it binding.

SUPERVISOR TRAINING. To establish closer liaison with overseers and second hands, top management should enlighten the lower levels of management, declared Mr. Mason. The company's history and aims should be understood by all levels; its financial, sales, and research policies explained. Extensive modernization programs should be briefed for employee benefit; opposition and mountainous ill-will can thus be avoided. Prejudices are turned aside, and programs run far more smoothly. Circulate new policies through various management levels for comment. Before negotiations take place for a new union contract, top management should sound out its divisional superintendents and department heads for suggestions to facilitate operations under the forthcoming agreement. Individuals must have preparatory training in order to assume responsible managerial functions. Continuous training for all management levels will cement an organization, increase interdepartmental cooperation, and result in demonstrable money economies. A supervisor who has listened to the purchasing agent explain the functions of his department, its problems and goal, will henceforth cooperate more intelligently, Mr. Mason concluded.

R. J. Dixson, director of public and industrial relations, Chicopee Mfg. Corp., New Brunswick, N. J., declared that far greater human understanding should motivate and guide industry progress. Economic and technological advances have outrun adequate personnel consideration, with the result that the textile industry, like all others, threatens to pull itself apart as human maladjustments resist the ad-

(*Continued on page* 198)

NEW TO THE TEXTILE WORLD

The Fibrograph TRADE MARK

tells you the length of cotton fiber automatically

● Now you can eliminate guess-work in cotton fiber analysis. The Fibrograph—a new, optical precision instrument pictured below, does the job for you automatically. It does not depend upon the accuracy of human eyes or judgment.

The design and operating principle of the Fibrograph are new. By means of phototubes, it scans samples of parallel cotton fibers and simultaneously traces a special length-frequency curve. The curve's geometrical properties make it possible to determine quickly various average length intervals, variance, and coefficient of variation.

Rapidly becoming the standard means for fiber length analysis, the Fibrograph provides the textile world with a scientific grading method heretofore unobtainable. It is ideal for textile mills . . . for raisers, processors and brokers of cotton . . . for research laboratories.

This dependable, precision instrument is sturdily built, compact, easy to use. Supplied with complete accessories. For further information, write for Bulletin ET-840.

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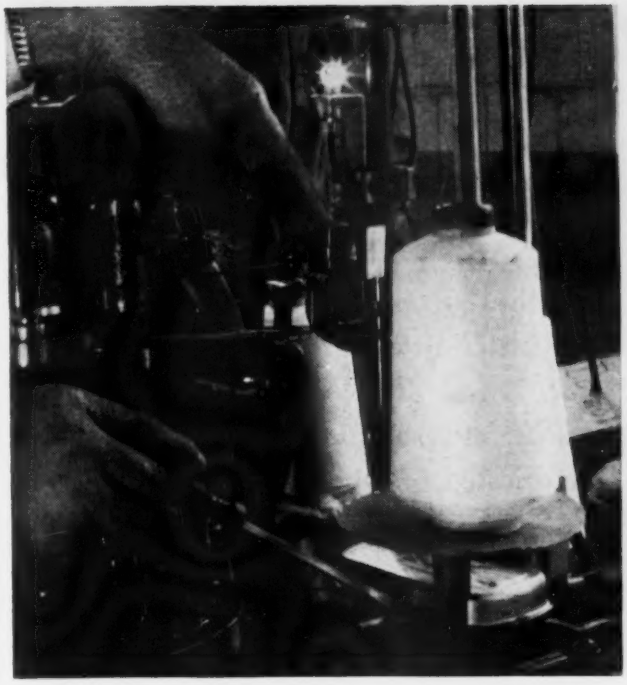
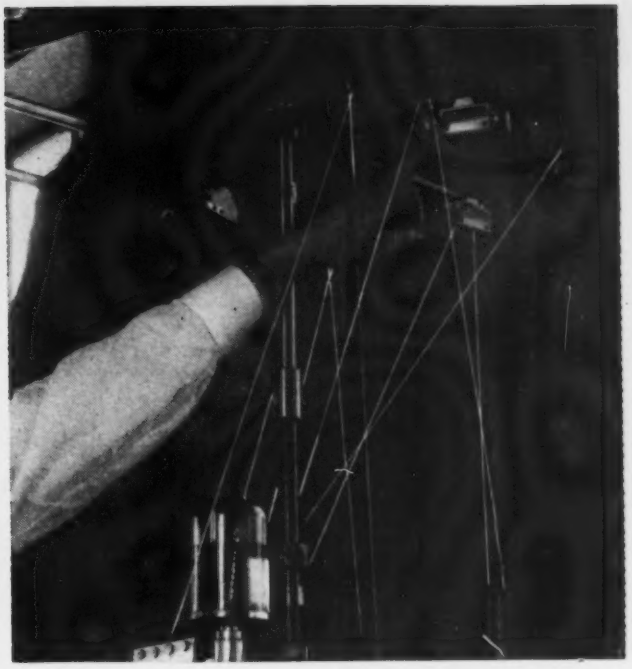
Canadian Representatives, Darling Brothers, Montreal



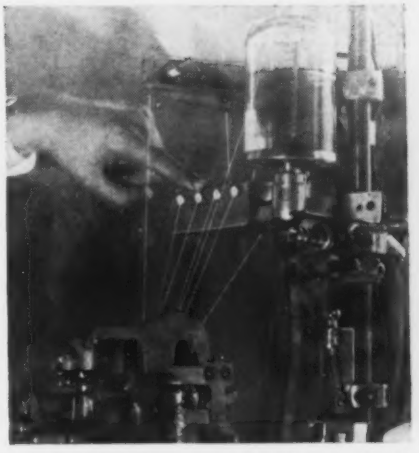
***This stop motion** is not prematurely activated by jars or vibrations. Operator points to the contacts which close the electrical circuit on the Arrowood device. The circuit remains open as long as the yarn runs correctly, closes when yarn tension becomes too tight or when the yarn breaks.*



***Lubricated 15-den. nylon** runs better, handles more easily after knitting, and prevents costly streaking in the hose. Note the wick-filled, lubrication chamber and the gravity-type oiler used by North Carolina State Vocational Textile School. A light conveniently placed on the machine signals the operator when the machine is stopped by excessive yarn tension or breakage.*

New Devices Aid SEAMLESS KNITTING

***HIGHLIGHTS:** New stop motion for 400-needle hosiery knitter stops machine when excessive yarn tension or a break occurs—Signal light and bell attract operator's attention—New oiler assembly conditions yarn, reduces streaking and pull threads in 15-den. hose—Devices in operation at North Carolina State Vocational School.*



***Immediate operator attention** is the objective of the signal bell on the Arrowood seamless-knitting stop-motion now in operation at the North Carolina State Vocational Textile School. Operator points to the location of the bell which combines with a light to attract the attention of the knitter when yarn tension becomes too tight or when the yarn breaks. Light and bell signals facilitate the operation of multiple-machine sets by seamless knitters. The yarn is 15-den. nylon, and the machine is Scott & Williams Dancing Twins 400-needle seamless machine.*

IMPROVED TECHNIQUES in the knitting of 400-needle seamless hose, and particularly in the manufacture of 15-den. nylons, are reported from the operation of new devices in the knitting room of North Carolina State Vocational Textile School, Belmont, N. C., where Charles W. Arrowood, head of the knitting department, has applied the stop-motion and oiling attachments previously developed by him and installed at Wisteria Hosiery Mills. The devices are mounted on Scott & Williams Dancing Twins models at Belmont and other mills.

Shown by the accompanying photographs, the stop-motion consists of an electric circuit held open by the normal tension of the yarn during knitting and equipped with suitable fingers and arms to actuate the switch. An unusual feature of the system closes the circuit and stops the machine when the yarn tension becomes too tight and also when the yarn breaks. The circuit, however, remains open should the machine be stopped for special causes such as cleaning or maintenance. And when the yarn is thrown out of position or out of operation by a change of feed, the resulting vibration of the machine does not cause the switch to move to its closed position and thus stop the machine.

Because of the operation of the stop motion, the knitting room at North

(Continued on page 215)

Hooker Combines Chlorine and Benzene to give you many useful CHLORBENZENES

HOOKER Chlorbenzenes and their derivatives find a wide variety of uses in many process industries. Our many years' experience in manufacturing these compounds assures you of uniform high quality of product and dependable service.

Listed below are some of these Chlorbenzenes. Technical Data Sheets on each and samples are available when requested on your business letterhead.

PRODUCT (*Chemical Formula Molecular Weight*)	*DESCRIPTION*	*SUGGESTED USES*
Monochlorbenzene C_6H_5Cl; 112.5	Clear, colorless, moderately volatile liquid, with a characteristic mild odor.	Intermediate in manufacture of insecticides, dyestuffs, drugs, perfumes, and other organic chemicals; solvent; heat transfer medium.
Paradichlorbenzene $C_6H_4Cl_2$; 147	White to clear, transparent crystals with a pleasant aromatic odor.	Insecticide; in the manufacture of sanitary specialties.
Orthodichlorbenzene, Tech. $C_6H_4Cl_2$; 147	Clear, colorless liquid with a characteristic odor. Completely miscible with most organic solvents; immiscible with water.	Solvent; insecticide; chemical intermediate in manufacture of dyestuffs and other organic chemicals; heat transfer medium.
Trichlorbenzene-1, 2, 4, Tech. $C_6H_3Cl_3$; 181.5	Clear, almost colorless mobile liquid having a characteristic chlorbenzene odor.	Insecticide; solvent; heat transfer medium; manufacture of dye intermediates and other organic chemicals.
Hexachlorbenzene C_6Cl_6; 284.7	White to cream colored crystalline powder. Somewhat soluble in most organic solvents; insoluble in water.	In the manufacture of flares, electrical insulating compositions, waterproof and fire-proof impregnation of paper; in wire drawing compounds.
Chloranisidine $ClC_6H_3(OCH_3)NH_2$; 157.5	Gray crystalline solid. Soluble in most organic solvents; insoluble in water.	Intermediate in the manufacture of dyestuffs such as red fast bases.
2, 5-Dichloraniline $Cl_2C_6H_3NH_2$; 162.0	Brown, crystalline solid; packaged as coarse crystals. Very slightly soluble in water; soluble in alcohol, benzene and ether.	Chemical intermediate in manufacture of dyestuffs.

HOOKER CHEMICALS

HOOKER ELECTROCHEMICAL COMPANY

4 Forty-Seventh St., Niagara Falls, N. Y.

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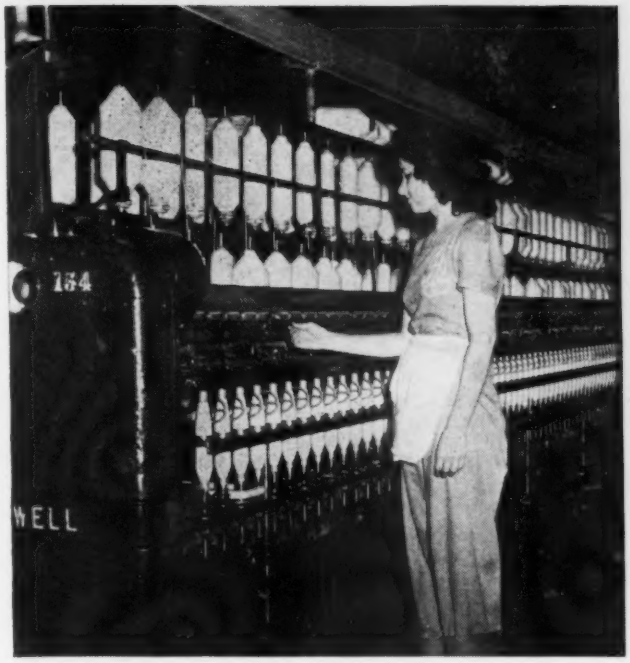
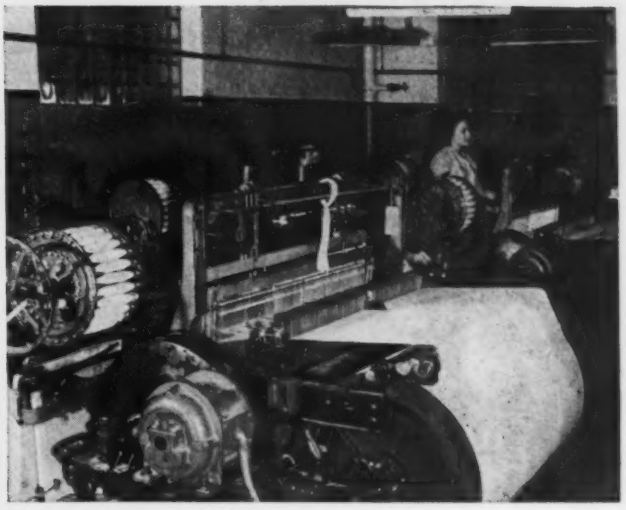
Caustic Soda Chlorine Muriatic Acid Sodium Sulfide Sodium Sulfhydrate



***New aluminum warp tubes** on this spinning frame are used over the Regnery-adapter spindles—a combination which permits Joanna to lengthen the doff intervals. Kathoryn Murrell is the operator.*



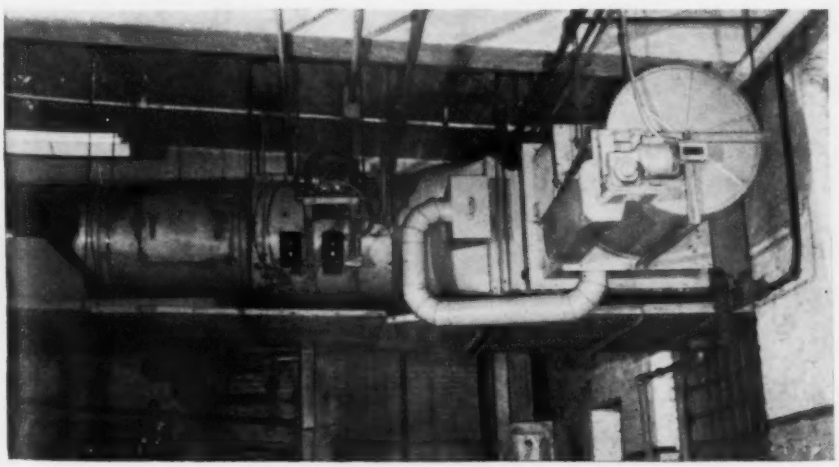
***Loom efficiency** has been greatly increased at Joanna mills as a result of new equipment such as the above 60-in. X-2 looms in the new mill addition and the completely rebuilt older looms in other weave rooms. Vivian Holsomback starts one of the new looms of which only nine at the moment have been warped up. Note attractive interior of Joanna's new addition and the use of glass-block windows. Fluorescent lights are lower than normally found in weave rooms, a factor which is said to ease the task of upkeep and to increase light-intensity.*

JOANNA COTTON
Makes Major Improvements

***HIGHLIGHTS:** Vast over-all expansion and modernization include new opening, picking, carding, 5-roll drawing, J-3 roving — Drawing sliver is single-processed to rovings for varied spinning equipped completely with Regnery adapter—Filling to be warp spun and rewound for looms, 100 of which are new X-2 models—New addition completed except for installation of Shaw spinning.*

By J. L. DELANEY, *Superintendent, Joanna Cotton Mills, Goldville, S. C.*

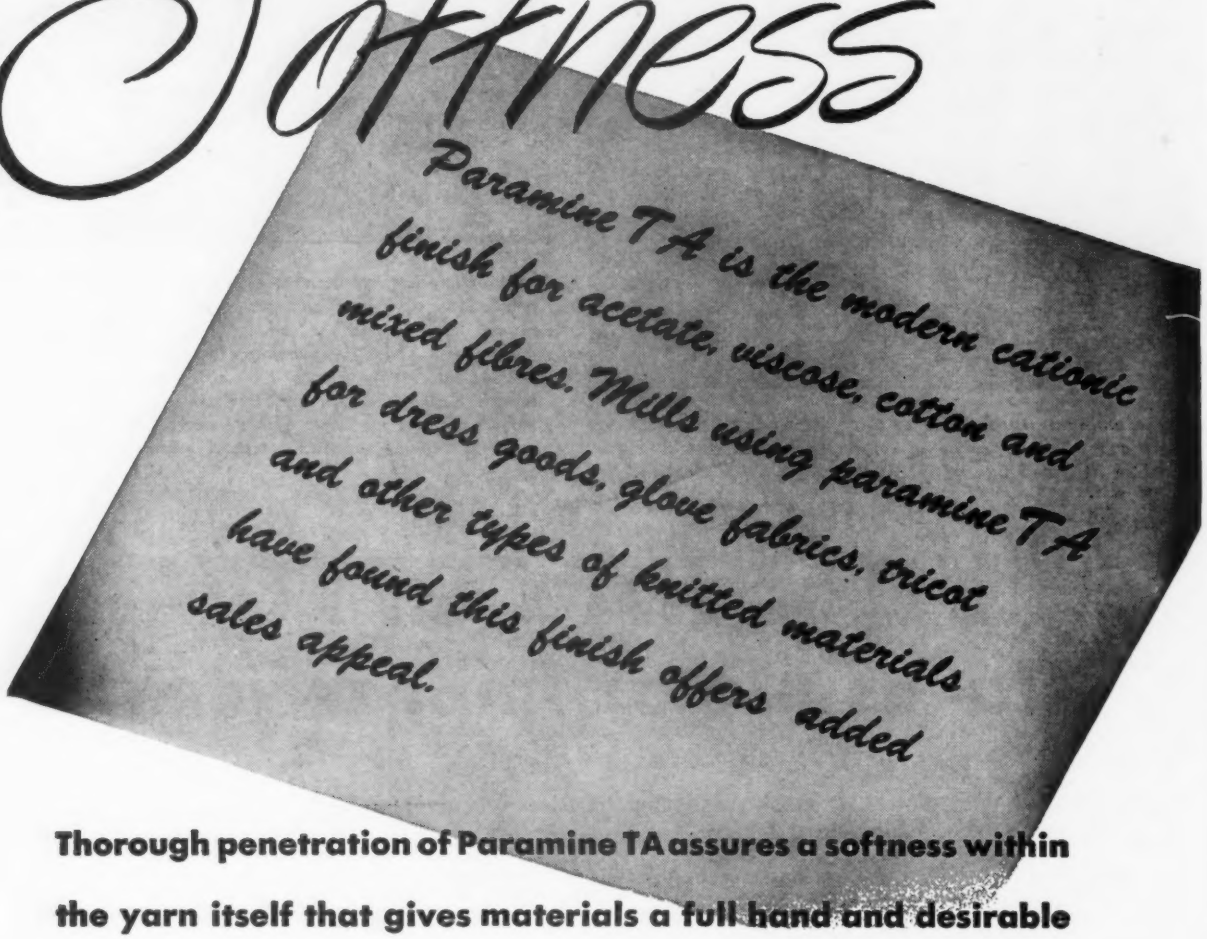
OVER-ALL MODERNIZATION of mill and village of Joanna Cotton Mills, Goldville, S. C., begun shortly before the end of the war, is now in its final stage. Mill additions have been built, older units of the plant have been improved, new machines have been added in almost every de-



***Unique air-filtering** resulted from the installation of Bahnson's Humiducts in Joanna's weave rooms. Formerly, filtering of air drawn up by the air changer from the room interior was obtained by means of a flat screen-section. While the flat screen-section performed efficiently in carding and spinning and required upkeep only when it was necessary to wipe away the lint which had accumulated on its surface, it did not work well in Joanna's weave room for the reason that size-laden air soon gummed up the screen, solidified, and defied cleaning except by drastic measures. Flat screens were boiled daily to remove the hardened size. The new Bahnson screen shown above, however, greatly reduced Joanna's troubles, requires little maintenance, allows a minimum of impurities to reach the ducts. The filter, right foreground, is simply a doffer screen which turns continuously against a rotary brush (encased at left of screen) which removes impurities before they have solidified on the screen surface.*

IF YOU WANT

DURABLE *Softness*


Paramine TA is the modern cationic finish for acetate, viscose, cotton and mixed fibres. Mills using paramine TA for dress goods, glove fabrics, tricot and other types of knitted materials have found this finish offers added sales appeal.

Thorough penetration of Paramine TA assures a softness within the yarn itself that gives materials a full hand and desirable drape—its substantive action produces a durable, lasting finish —Application is simple.

Use Paramine TA

*Reg. U. S. Pat. Off.

WRITE FOR DETAILS OR DEMONSTRATION

Arkansas Co. INC.

Manufacturers of Industrial Chemicals for Over 40 Years

NEWARK, NEW JERSEY

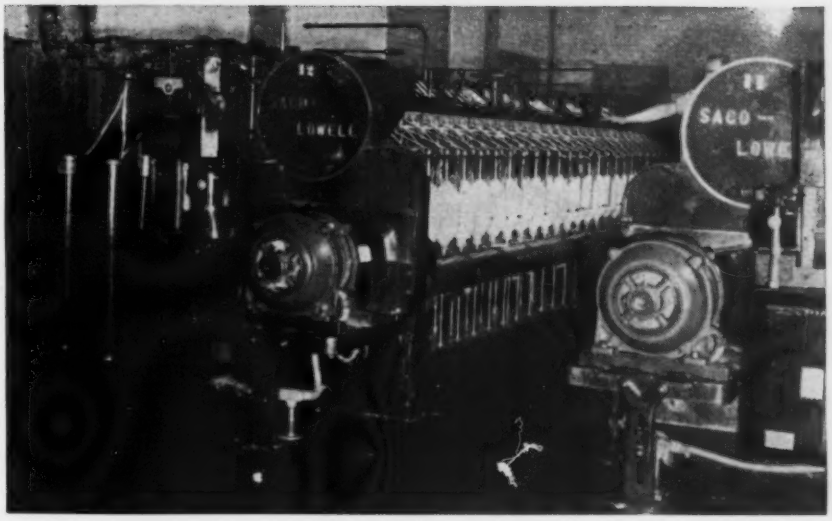
partment, new houses and apartments have been built for employees, and general mill and village maintenance have been improved. The photographic highlights accompanying this article show examples of mill and machine changes that have been made.

The mill's former opener-room line consisted of bale breaker, tandem feeders, vertical opener, horizontal opener, and Saco-Lowell No. 12 lattice-opener. The line was fed from a 25-bale mix. The new opener-line consists of an average of 8 F-7 blending feeders, fed from an 80-bale mix and delivering a thin sheet of well-opened cotton to a belt conveyor which carries the cotton to a combination Saco-Lowell No. 11 condenser and a No. 12 condenser, then to a second No. 11 and a second No. 12 machine. At this point, the cotton is picked up by the vacuum from the picker room.

Pickers have been equipped with the Saco-Lowell reserve-box feeder and blender, the new supersensitive evener-motion, ball-bearing fans and beaters, and a distributor system. The new layout is an almost trouble-free job which produces an extremely high percentage of uniform laps. New built-in filters are on order for the picker room.

The total number of cards has been increased from 219 to 324, and all have been equipped with continuous strippers. The increase in number of cards has permitted a substantial reduction in rate of carding production, accompanied by an increase in sliver quality.

As a result of an independent survey of cards, all cylinders, flats, and doffers are being reclothed as rapidly as possible, and new chains are installed wherever needed. During chain installations, new Oilite bushings are inserted into the bearing supports over the front plate. Feed rolls are being reworked, and Oilite bushings are being placed in the feed-roll bearings. On the front of the card, the doffer calender-roll shafts are rebuilt and rebored for oil holes which will permit ample lubrication. All calender-roll and coiler-head trumpets have been rebuilt and reamed to give every possible pound of production in the sliver can.



***Single-process roving** from 45-gr. sliver is the backbone of Joanna's organization of rovings and yarns. All roving frames are J-3 models, equipped with two-speed starters which reduce stretching and breaking of ends.*

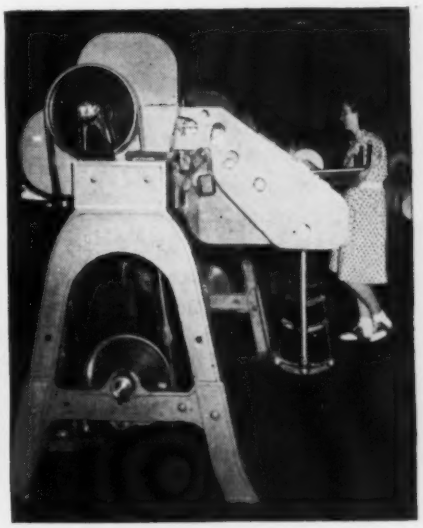
DRAWING AND ROVING. At the present time, the delivery of new lappers and controlled-draft drawing is incomplete. However, the drawing system when completed will be as follows: Regular four-roll deliveries will be used as the breaker drawing, making a 50-gr. sliver and running at 350 rpm. Sixteen cans of breaker drawing are passed through the sliver lapper to make a lap for the 5-roll, controlled-draft machines which, in turn, will deliver a 45-gr. sliver.

The mill has replaced the former two-process roving which consisted of a 10x5 feeding an 8x3½. The 30 new frames are 10x5 Saco-Lowell J-3 models which are equipped with Westinghouse two-speed starters. Less breakage and stretching of ends has resulted from the use of the new frames. All other roving frames in the mill have been converted to the J-3 system.

No new spinning has been added at present, but when the new spin-

(Continued on page 202)

***Yard-weight measures** are gages of lap quality, and Juanita Davenport tabulates them quickly as a check upon Joanna Cotton Mills new opening and picking machinery. The lap meter is one of several new machines in Joanna's laboratory.*



***New 5-roll drawing** has almost completely replaced conventional 4-roll drawing at Joanna Cotton Mills. The above frames have just been started up and are operated by Myrtle Gilliam.*

***Cotton materials-handling**—which applies to cloth or raw cotton—is illustrated by Charlie Simpson's fork truck. The use of fork trucks at Joanna mills was said to expedite the handling of materials in shipping and warehouse, and the cost of the trucks was repaid in one year of operation.*

Ends Costly Bearing Failures

Your Lubrication Methods May Be More Antiquated Than You Suspect

A simple thing like transferring grease with a paddle may be boosting your maintenance costs—and that means lower productive capacity per dollar per machine. The Alemite Representative is a *specialist* in simplified, modern methods of handling and applying lubricants. A five minute conference with him may open your eyes to new cost-cutting ideas. Call your Alemite jobber or write to Alemite, 1888 Diversey Parkway, Chicago 14, Illinois.

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Without human hands, dirt and moisture touching the grease, it's transferred in seconds direct from refinery sealed drums to the lubricating equipment. The result is mechanized barrel-to-bearing lubrication that ends all fear of costly bearing failures commonly caused by dirty grease.

This is just one of the many Alemite methods that help to cut production costs. Dirty grease can chew up bearings . . . inadequate lubrication will burn them out. Eliminate these *two* dangers with this Alemite Method and save grease, manhours, and machine time.

The Alemite Representative can show you case after case where actual practice or a time study analysis have proved that Alemite Methods eliminate wasteful and time-consuming handling of oils and greases . . . reduce shutdowns for repairs . . . time-outs for lubrication, add more productive time to machines. He can show you how to lubricate as many as 300 bearings from *one* central point without stopping the machines! Get the facts!

ALEMITE

Another Product of STEWART WARNER

MODERN LUBRICATION METHODS THAT CUT PRODUCTION COSTS

TEXTILE Equipment NEWS

Machine Produces Boys' Socks to Match Men's

***The Banner-Lastic top** is automatically knitted onto boys' socks which match men's sizes. (Hemphill)*

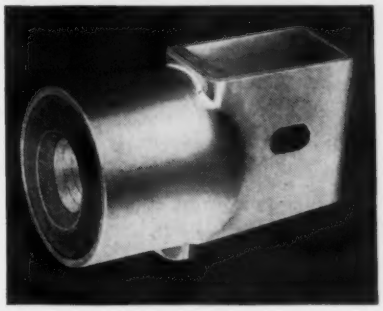
A Banner wrap-reverse machine for producing boy's flat-knit hosiery in color and patterns in perfect proportion and in the complete ranges now made by the wrap-reverse machine used for men's hosiery has been announced by Hemphill Co., Pawtucket, R. I. This machine will enable hosiery manufacturers to offer matching "father-and-son" combination colors and patterns.

The machine is a 3¼-in. cylinder, 120-needle, 24-gage unit said to produce 6½ to 7 doz. of size 8½, first quality, per 8-hr. day. With a simple preparatory change, the machine can be equipped to produce knee-length hosiery for boys and girls. It is also capable of automatically making the Banner-Lastic top, according to the manufacturer. Banner wraps in argyles, checks, overplaids, diagonal-wrap or plain stripes, and fancy and three-color checks are said to be produced automatically in a selection of 18 wrap colors.

Woolen Loom Being Made By Coastal

Details are expected to be announced soon of a new fancy woolen fly-shuttle loom being made by Coastal Machine Co. in Lawrence, Mass. The Lawrence laboratory is a branch of Coastal Machine Co., manufacturer of machine tools, in Bridgeport, Conn.

New Leather Picker Has Steel Shell



***Exceptional shock absorption** and resistance to deformation are said to result from the steel-and-leather construction of this new picker. (Graton & Knight)*

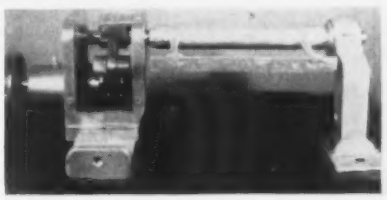
Prolonged life, improved shock absorption with no rebound and lifelong alignment on the picker stick are advantages claimed for a new high-speed-loom picker introduced by Graton & Knight Co., Worcester, Mass. Named Steel-Hide because of its steel-and-leather construction, the new picker has a nose consisting of layers of oak-tanned leather and rawhide cemented together and bonded to the steel shell. The drilled nose hole is designed to receive the impact from the shuttle spur in such a manner that heat is dissipated rapidly, giving rise to longer shuttle life. Exceptional shock absorption and resistance to deformation are said to result from the natural resiliency of the leather plus the strength and rigidity of the steel.

The loop is leather-cushioned at the front to give added resistance to impact and rubber-lined at the back to maintain a firm fit on the stick. A formed lip on the loop is designed to prevent rocking. These features are said to prevent the picker from working loose or twisting off center.

The picker has been under loom test both in laboratory and in actual mill operation, and it is now being marketed in both narrow-nose and wide-nose types. The Graton & Knight Co. invites mill executives to write for free test samples.

Comb Box Has Only Two Moving Parts

A sealed ball-bearing comb box, "The Colonel," which is said to use no oil has been developed by Odom Machine Mfg. Co., Roswell, Ga. The unit consists of two side walls, a reversible adapter plate, and tail stock, and has only two moving parts—the continuous cam and the cam throw arm. Both ends of the comb are mounted on sealed ball bearings. The reversible adapter plate is fastened to the box by four screws and permits conversion of the box from a right- to a left-hand box. The comb can be mounted on any make or model of card, the manufacturer states. The continuous cam is said to relieve the thrust load of strain believed to be a major cause of static; also claimed to be eliminated is the tightness found in boxes using eccentric split bearings and forks. In the event of comb-band breakage or jump-off, the comb blade will oscillate up, leaving the doffer free, according to the manufacturer. A transparent plastic cover on the box permits full view of and seals the moving parts. A stainless-steel cover is optional. Guaranteed by the manufacturer for 5 yr., the new comb box is said to increase the life of the comb blade.



***Longer comb life** due to smooth running motion is claimed for this new comb box. (Odom)*

Cotton Fibers Analyzed Electronically

The Fibrograph, an electronic instrument for determining the length and uniformity of cotton fibers, [Tw, Apr. '41, p.100; Aug. '44, p.132; July '46, p.153], is now available from Fulton-Sylphon Div., Robertshaw-Fulton Controls Co., Knoxville, Tenn. The instrument employs light-sensi- of parallel cotton fibers and simultantive photo tubes for scanning samples eously traces a frequency curve.

A test of the relation between the absolute lengths of fibers and those ascertained by the instrument was

TABLE I

Material Measured	Method of Measurement		
	Projection	Fibrograph	Ratio
7/8-in. Upland			
Mean length in 1/32 in	26.6	22.3	1.19
Upper half, mean length in 1/32 in	32.9	27.4	1.20
1 3/16-in. Upland			
Mean length in 1/32 in	33.2	28.4	1.17
Upper half, mean length in 1/32 in	43.9	36.6	1.20
Sea Island			
Mean length in 1/32 in	44.5	37.4	1.19
Upper half, mean length in 1/32 in	61.8	51.8	1.19

TABLE II

Variety	Fibrograph	Classer
	Upper-half mean length in 1/32 in.	Staple length in 1/32 in.
Acala 4-5	33.6	32.8
Clevewilt	34.2	34.4
Coker 100	36.2	35.0
Deltapine 10	32.9	33.4
Deltapine 11A	34.4	33.8
Rowden 4046	32.1	31.6
Stoneville 2A	33.9	33.8
Stoneville 2B	35.9	35.4
Trice W2 1-2	30.2	31.0
Washington	35.6	35.0
Grand mean	33.9	33.6

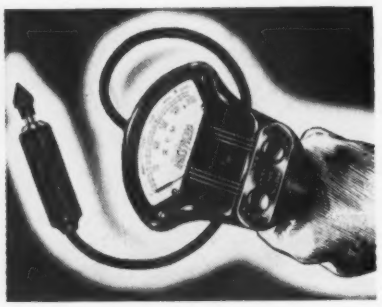
Length and uniformity of cotton fibers may be measured electronically by use of the Fibrograph (Fulton-Sylphon)

recently carried out at the University of Tennessee. Three cottons were sampled and over 3,000 fibers from each were measured by both the projection method and the Fibrograph. Results of the test, according to Table I, show that the Fibrograph length multiplied, on the average, by a factor of 1.19 gives the absolute length of the fibers.

Another test of accuracy made at U. of Tenn., shown in Table II, was a comparison of measurements obtained by the Fibrograph and by an expert classer.

The Fibrograph operates on 110-120 v., 60-cycle, a.c. current, and may be supplied for other operating currents. Dimensions are 12x14x21 in., shipping weight is 80 lb.

Electric Tachometers Cover Wide Range



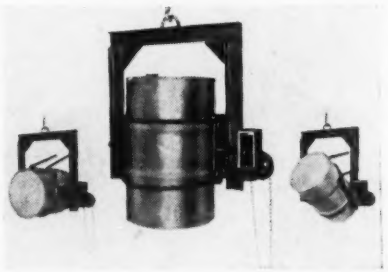
Angular or linear velocity from 20 to 10,000 rpm. can be measured by use of a line of electric tachometers available in several ranges. (Metron)

Multiple-range electric hand tachometers for measuring speeds in rpm. or fpm. have been announced by Metron Instrument Co., 432 Lincoln St., Denver 9, Colo. Three separate ranges, said to be accurate to 1%, are available: type 25A with ranges of 200 to 2,000 rpm., 500 to 5,000 rpm., and 1,000 to 10,000 rpm: type 25B with ranges of 20 to 200 rpm., 50 to 500 rpm., and 100 to 1,000 rpm. The desired range is selected by means of a switch which, the manufacturer states, is so designed that it prevents damage from selection of an improper range, from changing ranges while in operation, or from overspeeding. Operating torque of the head is said to be 1/20 ounce-inch.

The tachometer head is connected to the indicator by an electric cable, designed so that no vibration reaches the indicator and readings are steady. The spindle is mounted on ball bearings said to be permanently lubricated.

Tachometers are supplied in a carrying case which also contains two 60° cone tips, a hollow cone tip, a tip extension, and 1-ft.- and 1/10-ft.-circumference disks for measuring linear speeds. Speed adapters are also available for extending the range of the tachometers up or down by a factor of 10 to 1.

Drum Tilt Aids Handling of Liquids



Controlled handling of liquids is made possible by this new drum and barrel tilt. (Palmer-Shile)

A new drum and barrel tilt for controlled pouring of liquids has been announced by Palmer-Shile Co., 16012 Fullerton Ave., Detroit 27, Mich. The tilt is equipped with two safety-type locking devices designed to hold the barrel safely without slippage. The barrel can be turned 360° and locked in any position, it is said. A hand- or motor-driven chain controls the worm-type turning mechanism. The unit illustrated has a 1,000-lb. capacity for standard 55-gal. drum, is constructed of welded structural steel, and weighs about 125 lb. Special sizes or capacities to suit individual requirements are available.

Reciprocating Compressors Custom-Built to Suit Job

A new line of reciprocating compressors which can be made up from various components into over 1,000 different combinations to suit varied requirements has been developed by Carrier Corp., Syracuse, N. Y. All components (compressor, motor, base, coupling, and condenser) can be individually selected to match specific requirements of any job, the manufacturer states. Designed for either air-conditioning or low-temperature

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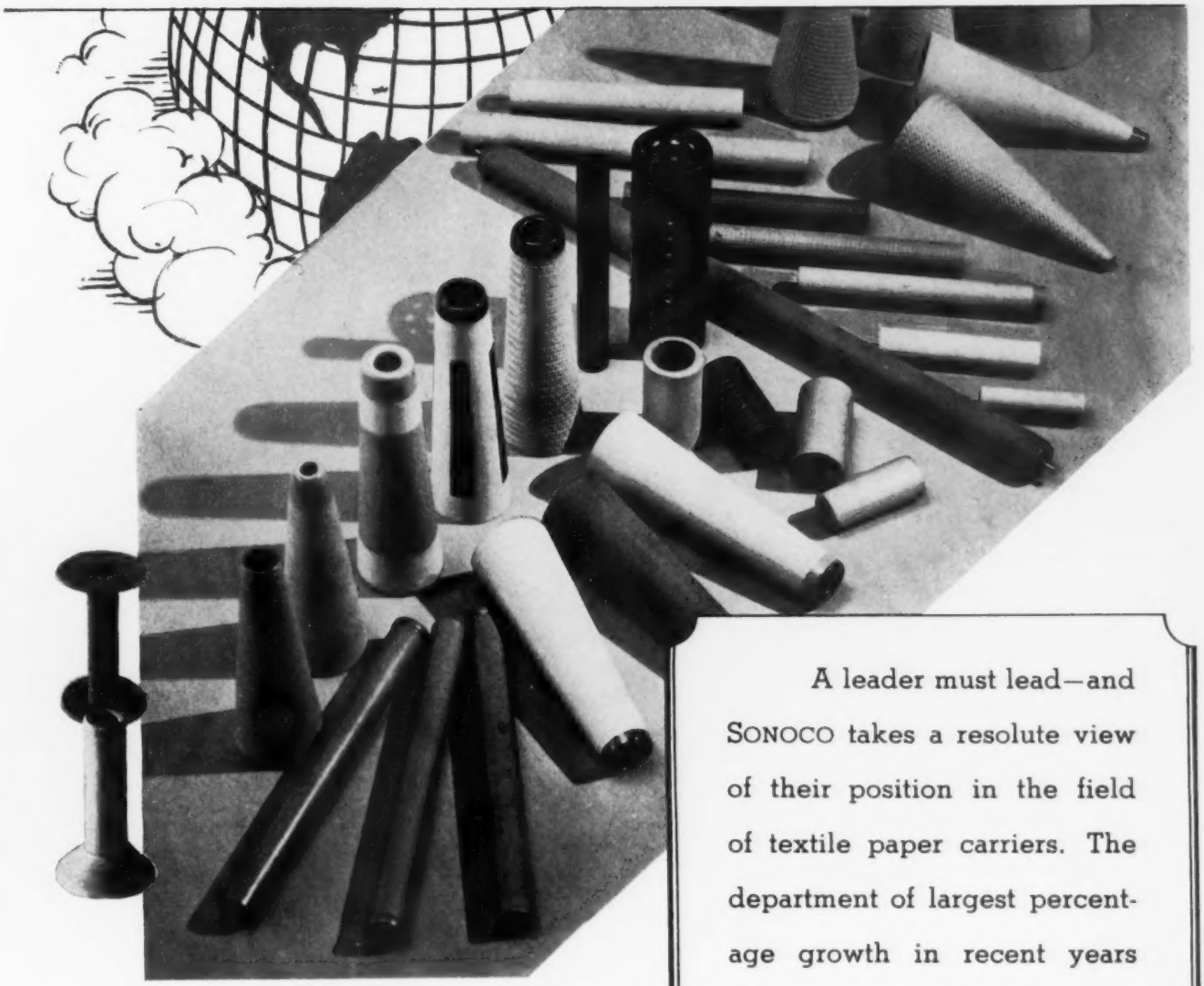
in TEXTILE PAPER CARRIERS



A leader must lead—and SONOCO takes a resolute view of their position in the field of textile paper carriers. The department of largest percentage growth in recent years at SONOCO is the laboratory. Continuous research and development is both an obligation and a privilege of SONOCO'S leadership in their field.

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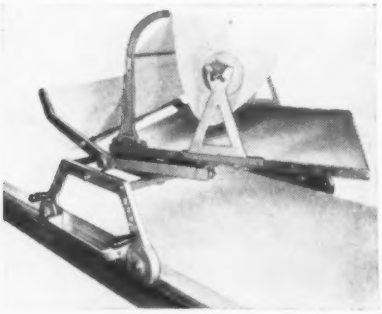
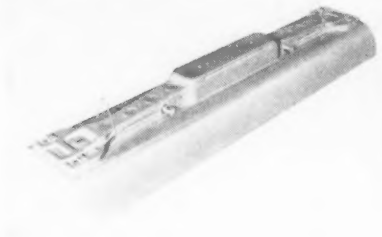
duties, the new machines are said to operate at higher speeds and to be about half the size and weight of previous compressors.

Spreading Machines Immediately Available



A new line of H.B.C. spreading machines, said to be available for immediate delivery, has been announced by Empire Cutting Machine Co., Inc., 224 Fifth Ave., New York, N. Y., sales agents. The cloth spreader shown is described as of lightweight, sturdy construction and able to handle all types of work, flat or rolled. The machine is also said to eliminate stretching of material, to face goods in both directions, and to have labor-saving features.

Fluorescent Fixture Is Moisture-Resistant



Simplified, bridge-like construction and a moisture-resistant finish make this fixture ideal for textile-mill use. (Sylvania)

A "weatherized" fluorescent fixture, the HF-100, especially designed for use in high-humidity atmospheres of textile mills makes use of a plastic finish highly resistant to rust, corrosion, pitting, and crazing. In addition to its protective qualities, Miracoat, the plastic finish, is said to furnish a reflection factor on the white inner surface of not less than 86%.

Hook slots in both sides of the top housing provide ease of mounting with single hanger hooks. A turned-down lip on the reflector is said to provide rigidity and lessen dust, lint, and moisture collection. To simplify cleaning and inspection of ballast and wiring, the reflector is attached to the top housing by means of captive latches and can be detached without removing any fasteners.

Pilot Model of Sulzer Loom Completed

The first of five pilot models of Warner & Swasey Co.'s weaving machines, produced under an agreement with Sulzer Bros. of Switzerland, has been completed and is undergoing test runs in the Cleveland firm's plant. Tests in mills yet unnamed are to follow. Assembly of the other four is well under way, and so confident is the producer that this new type weaving machine will be accepted by the textile industry that tooling-up operations have been started for full-line production which is hoped for by late in the year. Warner & Swasey has also instituted a training program on weaving methods and practices for a selected portion of its personnel.

Meanwhile engineers are continuing research on an improved or new type of textile equipment the company has been urged to produce.

Portable Edger Has Conical Disk

Dual motors drive this edger for sanding otherwise inaccessible floor sections under textile machines. (Tennant)

A portable edger powered by two motors, specially designed with a nose only 4½ in. high for sanding hard-to-reach floors under textile machinery, along baseboards, etc., has been developed by G. H. Tennant Co., 2530 North 2nd St., Minneapolis 11, Minn. Standard 7-in. flat sanding disks are mounted on a conical cushion which is said to concentrate pressure on the sandpaper in a short, effective arc. About 85% of the disk runs free. This action, according to the manufacturer, flexes and cools the disk, helps keep the grit free of dirt and dust, and allows faster cutting action. As a result, sandpaper reportedly cuts more smoothly and lasts longer.

Dust control, described as nearly 100% effective, is provided by a vacuum system which includes a separate fan motor (10,000 rpm.) and a sealed-to-floor dust shroud. A flexible skirt, resting on the floor, incloses sanding disk and vacuum housing.

The edger is made of polished aluminum alloy and is equipped with a built-in light, 25 ft. of rubber-covered extension cord, large casters, instantly detachable dust pipe, and fabric bag. Motors have separate switches and operate on 60-cycle a.c. or d.c. current.

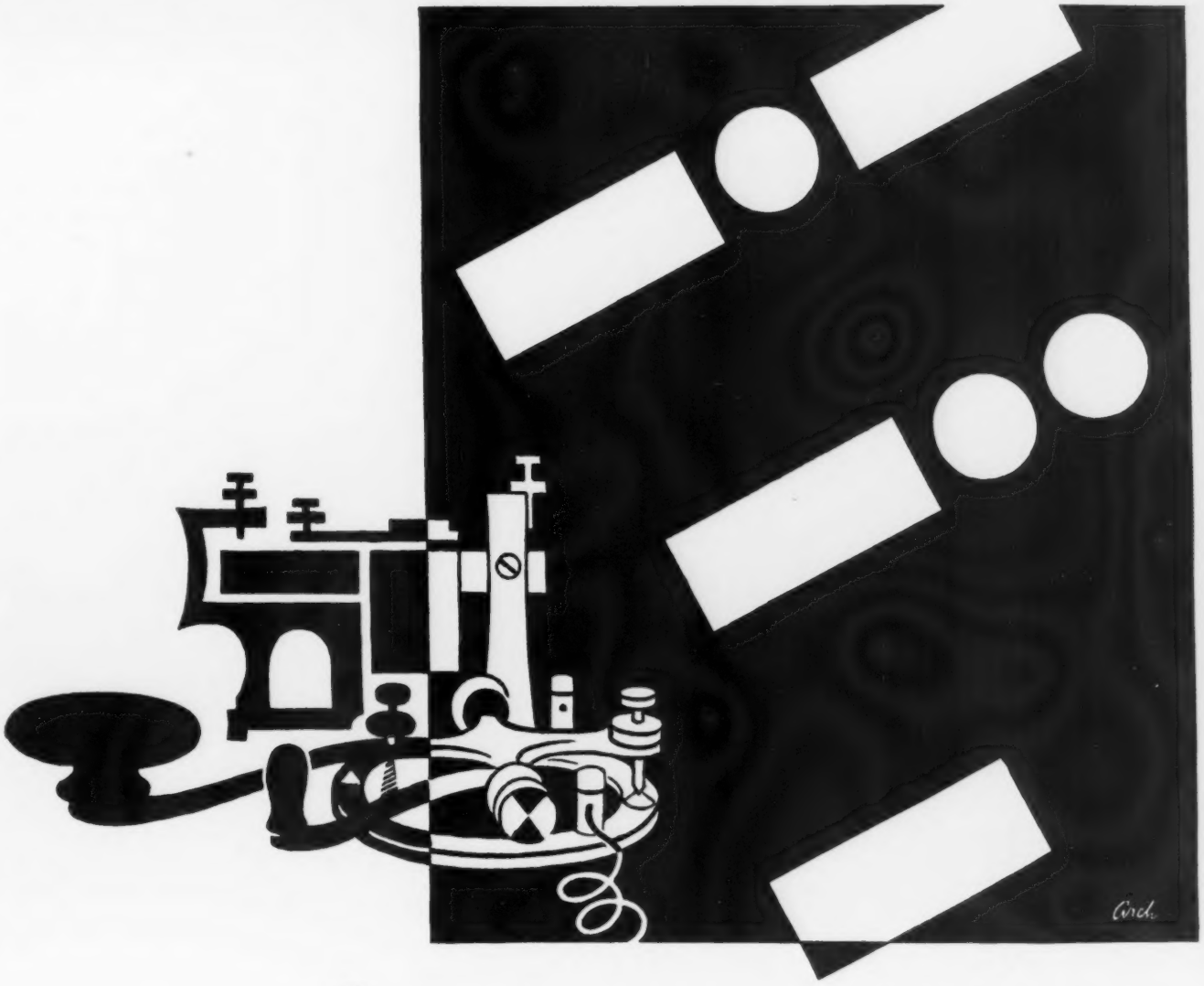
New pH Meter Is Free From Grounding

A new line-operated, direct-reading, continuous-indicating pH meter has been announced by the Macbeth Corp., 227 W. 17th St., New York 11, N. Y. The new meter is especially designed to eliminate difficulties arising out of widely varying voltages by incorporation of two stages of voltage regulation, permitting voltage variations from 80 to 135 v. The electrical circuit is said to have been completely freed from grounding so that electrodes may be used in grounded tanks or flow lines.

Improved Schiefer Abrader Provides Uniform Wear

Now available in an improved form is the Schiefer abrasion-testing machine [TW, May '47, p.164], a tester originally developed by the National Bureau of Standards. The machine abrades the specimen uniformly from every azimuthal direction, according to the manufacturer, Sherman W. Frazier, 953 15th St., S.E., Washington 3, D.C. The principle involved is based on the mathematical solution worked out by Dr. H. F. Schiefer to obtain uniformity of wear, excluding any preferential direction.

The sample is placed by use of a conical template between two circu-



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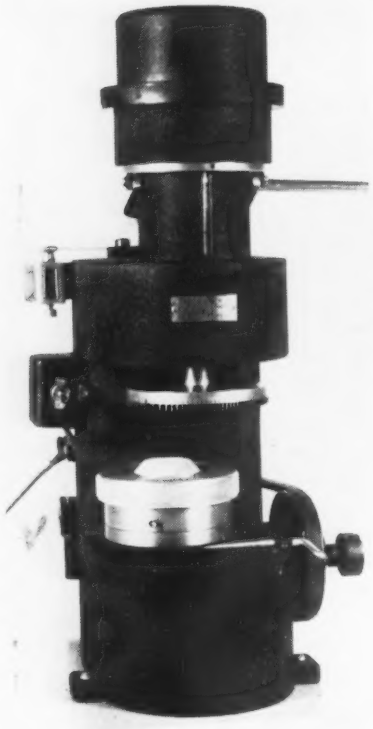


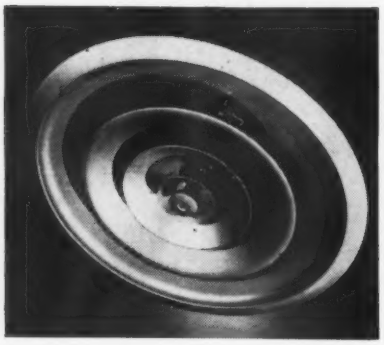
Uniform abrasion from every azimuthal direction is claimed for this improved model of the Schiefer abrasion-testing machine. (Frazier)

The uniform wear provided by the Schiefer tester is demonstrated by this nylon duck specimen which was worn until only warp threads remained. (Frazier)

lar clamps which expose the sample through a center hole. The clamp and sample are placed and locked in the machine, and the abradant is lowered onto the sample with a known pressure.

For a quantitative measurement and visual inspection of the amount of abrasion, the machine may be stopped at any time and the sample checked without disturbing the specimen in the clamp. Rate of abrasion may be varied by changing the pressure of the abradant or by using pressure plates of different diameters, as desired.

Diffuser Has Adjustable Flow Pattern



The aspiration principle used in this diffuser mixes room air with supply air. (Anemostat)

Adjustment of air-flow pattern with the turn of a knob is an outstanding feature of a new air diffuser announced by Anemostat Corp. of America, 10 East 39th St., New York 16, N. Y. By normal or remote control, the position of the third cone can be varied, thus producing different air patterns described as ranging from draftless diffusion to downward projection without affecting air resistance. The diffuser utilizes the Anemostat aspiration principle which draws room air into the device and mixes it with supply air. The amount of air drawn into the outlet depends on the adjustment setting and varies from 15 to 35%. Any number of Anemostats can be adjusted simultaneously by pneumatically operated equipment, according to the manufacturer.

Diamond Powders Polish, Refinish Thread Guides

Polishing and refinishing thread guides for better performance and longer life is made possible by use of diamond powders. (Hyprez)

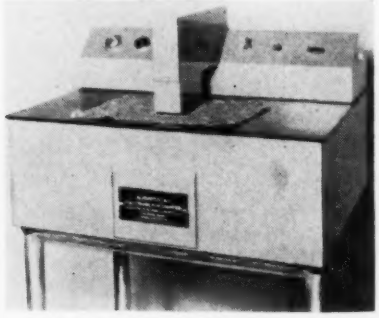
Diamond powder compounds for polishing and refinishing thread guides, machine parts, bearings are being offered by Hyprez Div., Engis Equipment Co., 431 S. Dearborn St., Chicago 5, Ill. On stainless steel, steel, sapphire, tungsten carbide, ceramics, and other hard material, the Hyprez method is said to permit effective and reliable finishing of parts in production, as well as simple and quick repolishing in maintenance.

Powders are furnished in sealed glass cartridges which are loaded into an applicator gun. The gun may be equipped with a standard nozzle that extrudes exactly metered amounts, or with a reduction needle which dispenses the compounds in pin-point quantities for fine work. The gun is designed for economy and ease of operation even in the hands of inexperienced workers. The abrasive content of the Hyprez powders consists of clean, virgin, accurately graded diamond powders, according to the manufacturer, uniformly distributed and permanently suspended in a patented stable compound of an identifying integral color.

Spray Metal Requires No Surface Preparation

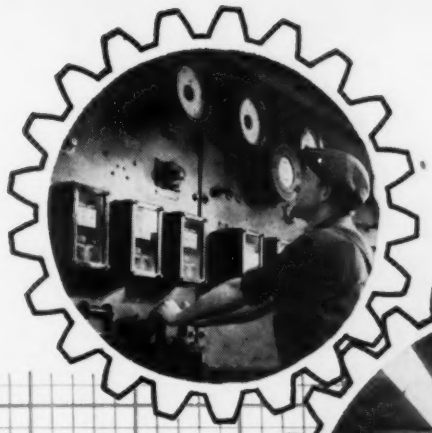
Sprabond, a metallizing metal said to adhere to smooth, polished steel with no surface preparation other than cleaning has been announced by Metallizing Engineering Co., 38-19 30th St., Long Island City 1, N. Y. Surfaces to be metallized need no roughening, according to the manufacturer. A layer of 1.5 to 2/1000 in. of Sprabond is applied, then the remainder may build up with any sprayed metal desired. Sprabond is available in 15 B&S, 11 B&S, $\frac{1}{8}$-in. dia. wire.

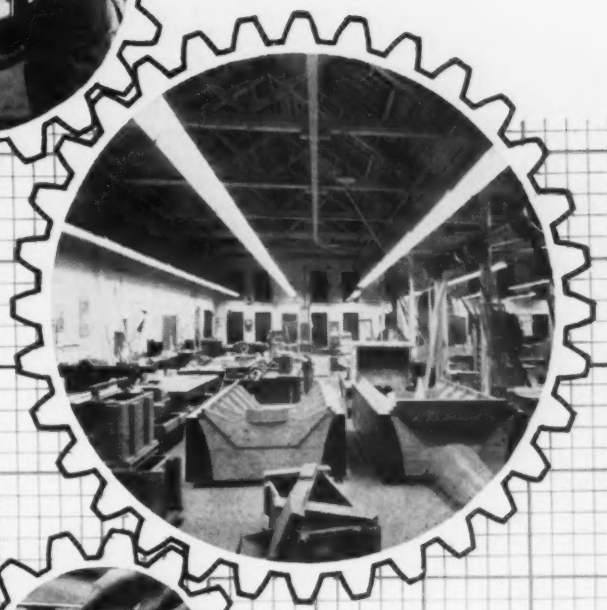
Picks Counted In 30 Sec.

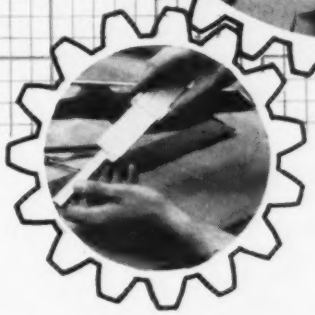


Elimination of human errors, in pick counting is claimed for this electronic counter. (Sjostrom)

A streamlined version of the electronic pick counter introduced by Sjostrom Machine Co. [TW, Jan. '40,







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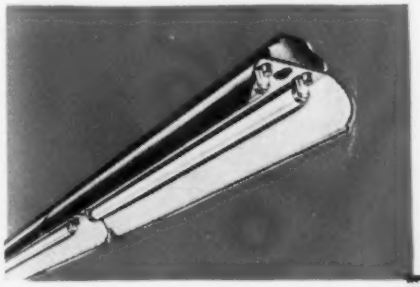
Whether your plant has high ceilings or low ceilings, hard-to-light corners, light-absorbing floors and walls... whatever your plant lighting problems, you can solve them with Day-Brite Fluorescent Lighting Fixtures. They distribute glare-free light evenly on the working plane, are rigidly constructed of heavy gauge steel, and engineered to withstand shock and vibration. Day-Brite Fixtures are made to last.

The **DAY-LINE** heavy-duty industrial fluorescent fixture with porcelain-enameled steel reflectors. Designed for two and three 40-watt and two 100-watt lamps... unit or continuous installations. U. S. Patent Nos. 2317434, D-135375 and D-133458.



Day-Brite Lighting, Inc., 5455 Bulwer Avenue, St. Louis 7, Mo.
Nationally distributed through leading electrical supply houses.

In Canada: address all inquiries to Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

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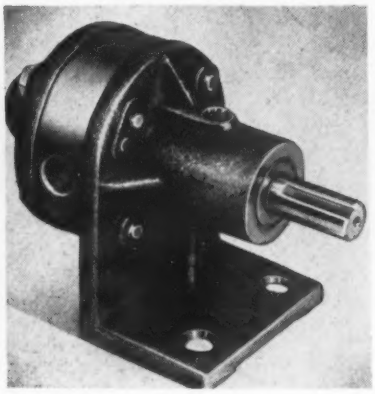
IT'S EASY TO SEE WHEN IT'S

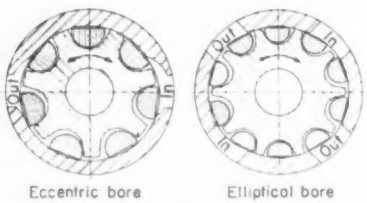
DAY-BRITE *Lighting*

p.78] is now in production and available for 8- to 10-week delivery. To operate the Pick-O-Meter, a sample of cloth is placed under a glass plate, a switch snapped; and in 30 seconds the number of threads for 2 in. is registered on a dial. Counting is accomplished by a light source, optical system, and photo tubes. A tiny beam of light said to be less than 1/1000 in. wide is focused on the sample. The light moves across the 2-in. sample and the differences of the light volume between threads are amplified by 10 radio tubes to energize an electric counter. Absolute accuracy and elimination of human errors and eyestrain are claimed.

Rotary Pump Operates On New Principle



***Low upkeep** of this pump is said to result from the balanced axial load on the rotor shaft. (Ellipse)*



***Positive displacement** of liquids is accomplished by the mechanical action of vanes and rotor. (Ellipse)*

Use of an entirely new rotary-pump principle is said to offer positive displacement, high volumetric efficiency, and low power requirements in a new series, C-175, of rotary pumps developed by Ellipse Corp., 24 S. Clinton St., Chicago 6, Ill. Ejection is accomplished by mechanical action of vanes and rotor, not by centrifugal force alone. Ordinary wear in use does not reduce the pump capacity, it is stated, and quiet operation at standard electric-motor speeds is said to eliminate the need for belts and pulleys. The standard pump is designed to handle from $\frac{1}{2}$ to 4 gal. per min. at 125 psi. working pressure.

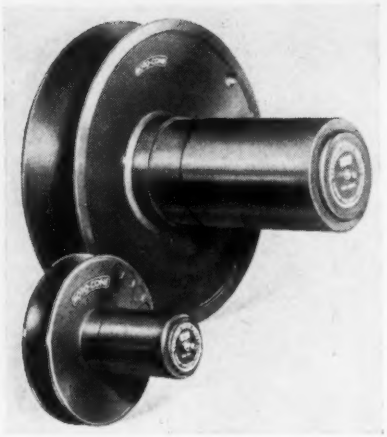
Gun Sprays All Types of Flock

***The stream of flock** from this gun is controlled by air valves (Black)*

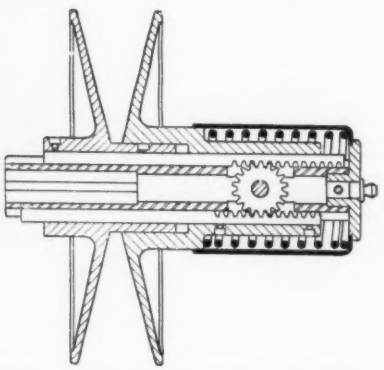
A flock gun designed to handle all types of flock in all available lengths without clogging has been developed by Black Mfg. Co., 1416 W. Baltimore St., Baltimore 23, Md. A control permits alteration of flow from a narrow, fine stream to a wide, highly concentrated stream. Three adjusting valves control the amount of air that agitates the flock, the amount of air flowing through the nozzle, and the air to the atomizer head which in turn determines the spray pattern. A line pressure of 40 to 60 psi. is recommended.

Variable-Pitch Pulleys Maintain Belt Alignment

Variable-pitch pulleys which employ a double rack and pinion to keep the two sheave faces equal and opposite at all times are now available in horsepower ratings from $\frac{1}{3}$ to $7\frac{1}{2}$, according to a recent announcement by Gerbing Mfg. Corp., 157 East Erie St., Chicago, Ill. A constant belt centerline is maintained by the sheaves at all times, it is stated, with a single spring providing the necessary pressure for proper belt tension. The Roto-Cone unit is designed to eliminate noise and chatter. Mounting



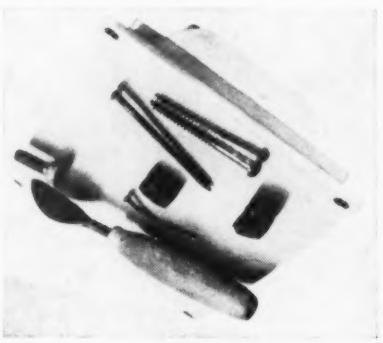
***A double rack and pinion** in this variable-speed pulley is said to keep sheave faces equal and opposite at all times. (Gerbing)*



***Constant belt alignment** is claimed to result from the design of these Roto-Cone pulleys. (Gerbing)*

may be vertical or horizontal. All sizes are said to deliver infinite variations of speed within a 3-to-1 ratio (except the $\frac{1}{3}$ hp., which is $2\frac{1}{4}$ to 1). Wide V-belts, adjustable motor bases, and V-groove driven sheaves are available.

New Permanent Magnet Announced



***A non-electric magnetic separator** for removal of tramp iron from textile fibers has been introduced by Cesco, Inc., San Francisco, Calif. No wires, rectifiers, battery, or generator is required; and the manufacturer states that the plate will hold its magnetism for a 10-yr. period.*

Flotex FOR PRINTING

for extremely sharp outlines

FLOTEX adds sharpness of detail and brilliance of color to the *now* look—before it is fashioned from wool, cotton and rayon.

FLOTEX remains stable in the presence of acids and alkalies. It excels in printing Rapidogen, Indigosol, Napthol, Chrome, Acid and Basic colors on all types of fabrics. It also yields jet blacks with extremely sharp outlines.

FLOTEX is a colorless, clear-cooking thickener that serves as a replacement or extender for considerably more expensive Tragacanth, Locust Bean and other natural and synthetic gums for either roller machine or screen printing. It produces a high viscosity with low solids . . . deposits only a thin film on the cloth . . . and leaves the printed portion of even the sheerest of fabrics soft and pliable.

National also produces: **FIBERTEX** for finishing sheer cotton, rayon crepes and spun rayon blends; **AMBERTEX** a heavy-bodied thickener for white discharge and vat color printing; **VAT THICKENER 36** for vat colors on cotton and rayon; **TABLE ADHESIVE** for screen printing; **FLOCK ADHESIVE 970** for chenille flock printing.

Offices: 270 Madison Avenue, New York 16; Boston, Philadelphia, Atlanta, New Orleans, Indianapolis, Chicago, San Francisco and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto, Vancouver and Montreal. In Holland: Nationale Zetmeelindustrie, N. V., Veendam.

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National
STARCH PRODUCTS

STARCHES — AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

pH Indicator Is Highly Sensitive

Methyl purple, a new pH indicator introduced by Fleisher Chemical Co., Benjamin Franklin Sta., Washington 4, D. C., exhibits an emerald-green color in alkaline solution and a purple color in acid. An intermediate steel-gray tint provides a warning of the end point. Color transitions are said to take place over a narrow pH differential. When approaching the end point, the producer states, a single drop of 0.05 N acid affects a transition from the alkaline green to the warning gray, while another drop produces the purple endpoint.

Spectral Printing Process Offered in U. S.

"Spectral Printing," a new process for printing cotton, silk, and rayon and other synthetic-yarn goods is being introduced into the U. S. following years of development. The new process, involving entirely new methods, is said to cut out some present-day operations needed for printing, to use less dyestuffs, to show printed colors more clearly, and to produce overprint color effects. Savings in the roller and engraving processing are also claimed.

The process, in operation in Europe for many years, is owned by A. Mettler-Bener of St. Gall, Switzerland. Agent in the United States is Ernest Glaesel of Schwarzenbach Huber Co., 470 4th Ave., New York, N. Y.

White or Colored Resists Produced on Nylon

White or colored resists can be produced on nylon with Nylon Resist GDC, a new textile auxiliary announced recently by General Dyestuff Corp., 435 Hudson St., New York 14, N. Y. The product is said to be applicable to colored or uncolored nylon yarn intended for decoration, and to fabrics containing nylon and wool where a two-tone effect is desired. The affinity of most wool dyes for nylon is eliminated, according to the manufacturer; and the resist is also fast to cross-dyeing by most acid dyes. Satisfactory fastness to fulling and scouring treatments customarily given to worsted fabrics is claimed.

The resist is furnished as a fine, water-soluble, nearly white powder.

Useful Accessories
FOR TEXTILE MILLS

Lightweight Air Hose

A lightweight hose with rayon strength members, said to be ideally suited to blowing-down machinery or ceilings, has been announced by Raybestos-Manhattan, Inc., Passaic, N. J. Made in both conventional and oil-proof types, the hose is available in ¼- and ½-in. size.

Variable-Delivery Feed Pump

A new fluid-power, variable-delivery feed pump with fine and coarse feeds, said to be adjustable over a 20 to 1 range, has been announced by Oilgear Co., 1301 W. Bruce St., Milwaukee 4, Wis. Variable ratios from 13 to 1 to 265 to 1 between feeding and rapid traverse speeds are provided.

Low-Priced Aluminum Sheet

A new type of aluminum sheeting costing about 15% less than any aluminum previously offered the sheet-metal industries has been developed by Reynolds Metals Co., 2500 South Third St., Louisville, Ky. It is available as roller-leveled flat sheet in widths of 30, 32, 36, and 48 in.; lengths of 96, 120, and 144 in.; as coiled sheet in widths of 29, 30, 32, 36, and 48 in. Both forms are supplied in thicknesses of 0.018, 0.020, 0.025, 0.032, 0.040, 0.051, and 0.064 in.

Drum Pumps

A new line of air-operated, heavy-duty drum pumps for use on 55-gal. containers has been announced by Aro Equipment Co., Bryan, Ohio. Drum-cover types for full-opening drums, and bung-bushing types are offered in seven pressure ratios from 40-to-1 to 2-to-1.

Self-Acting Center Punch

A self-acting center punch in which impact may be controlled to suit varied requirements has been announced by Sattelee Products, 775 Boylston St., Boston, Mass. The control is said to permit extreme accuracy of work, especially on thin sheet metal or where small punch marks are desired. The punch is ⅞ in. in diameter, 5 in. long, and weighs only ½ oz.

Aluminum Drum

A 30-gal., all-aluminum chemical drum especially suited for chemicals which decompose in the presence of heavy-metal salts has been introduced by Reynolds Metals Co., 2000 So. 9th St., Louisville 1, Ky. Weight is 34 lb.; height, 30½ in. and outside diameter, 18 in. plus an added 3 in. for supporting rings.

Silica-Removal Units

Equipment which applies demineralizing principles to silica removal from raw boiler-feed water has been developed by Liquid Conditioning Corp., 114 East Price St., Linden, N. J. A Liquon hydrogen-zeolite unit followed by a Liquon anion-exchanger is used. A fluoride is added to the water and is converted to hydrofluoric acid by the cation-exchange material. The acid combines with the silica, and in the second unit is removed.

Fountain Marker

A pocket-size fountain marker made of aluminum, incorporating positive ink control, has been announced by Diagraph-Bradley Industries, Inc., 3745 Forest Park, St. Louis 8, Mo. Pressure on the tip opens a valve and allows ink to flow, saturating the tip, according to the manufacturer. Fine or broad lines can be made, and markings can be applied to crates, boxes, etc.

Flame-Failure Safeguard

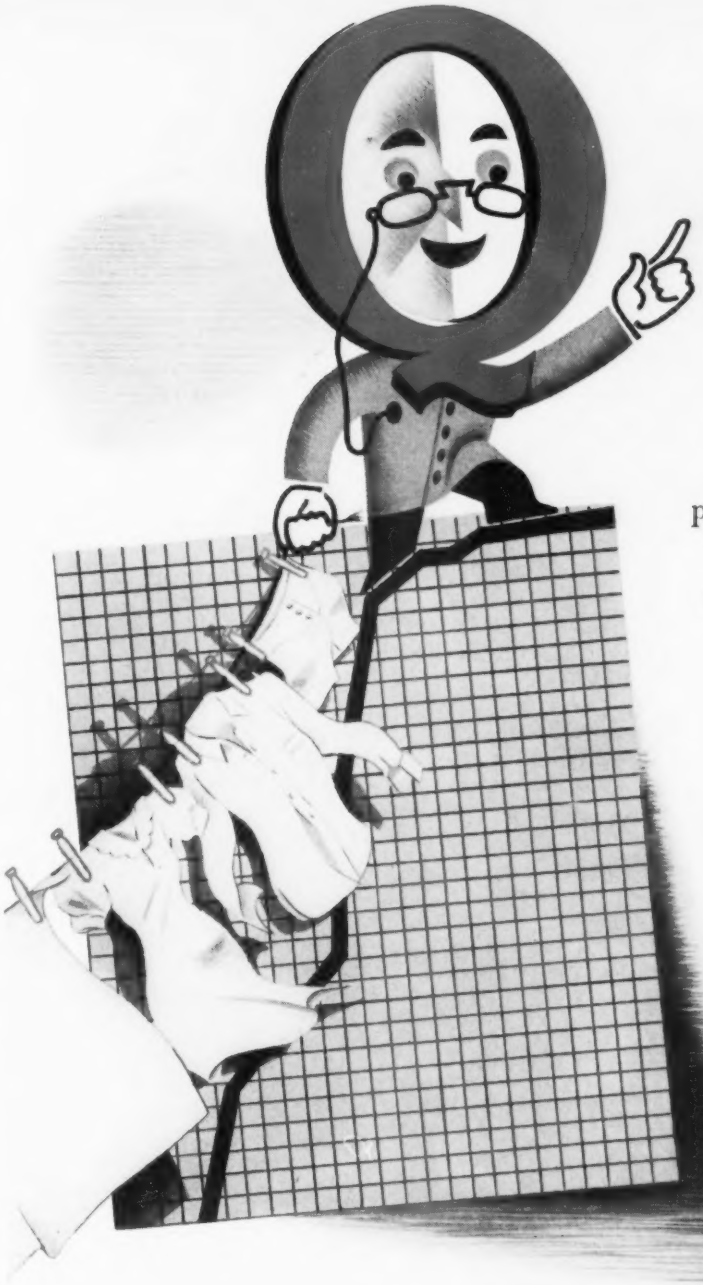
An electronic flame-failure safeguard for boilers and gas ovens said to actually "feel" the flame has been developed by Combustion Control Corp., 77 Broadway, Cambridge 42, Mass. Using electronic means, it instantly cuts off fuel and can be wired to sound an alarm when the flame fails, the manufacturer states. Unlike thermal controls, it cannot be affected by secondary effects of the flame.

Rubber Mat for Standees

The "Stand-eze Softaire," a non-marking, non-skid rubber mat for relief of standing fatigue has been announced by Colonial Rubber Co., Ravenna, Ohio. Nearly 2,000 small rubber cells are designed to gather and retain air, and a "squeegee' action is provided by thin strips of tough rubber criss-crossing each cell. The resiliency of the 16x22-in. mat is said to make standing pleasant without any sensation of annoying softness.

Screw Anchor of Plastic

An expanding plastic screw anchor for holding screws in practically any material has been announced by Holub Industries, Inc.; Sycamore, Ill. Made with overlapping internal and external slits to give a "concertina" expansion, the anchor is said by the manufacturer to have held screws in laboratory tests under load pulls up to 2,965 lb. using a No. 20 screw. Immunity to age and rot is claimed, and seven popular sizes for screws from Nos. 5 to 20 or for lag screws ¼ and ⅜-in. are available.



CLEANLINESS REACHES THE TOP

. . . when QUADRAFOS* gives washing a lift

Your scour hits new heights of cleaning power when QUADRAFOS helps you get the most out of the least soap and alkali. Softening even the hardest water right down to the zero mark without the slightest trace of precipitation, QUADRAFOS is clearly water's most efficient partner. That's why you'll find nothing like the way QUADRAFOS loosens the grip of grease and soil, breaks them up into tiny particles, prevents them from re-gathering on material or equipment. Write for complete information about the many ways QUADRAFOS can help you "clean up" in textile wet processing.

softens water without precipitation...deflocculates ...redissolves precipitates...promotes free rinsing

ONLY WITH
QUADRAFOS
CAN WATER
DO SO MUCH, SO WELL

*U. S. Reg. Trade-Mark for Sodium Tetraphosphate made by Rumford

RUMFORD CHEMICAL WORKS
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Please send me further information about the use of QUADRAFOS in textile wet processing. I'm particularly interested in:

- ☐ Raw wool scouring
- ☐ Piece goods scouring
- ☐ Kier boiling
- ☐ Reducing bleach requirements
- ☐ Brighter, more uniform dyeing
- ☐ Viscosity control of printing pastes
- ☐ .....

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Round Table

FOR EXCHANGE OF IDEAS—*The Round Table is open to letters from any and all readers discussing subjects relating to mill management, production, engineering, technology, etc. Names of contributors will be held confidential if so requested, but contributions must be signed with real name and address as evidence of good faith and to permit payment for items published. Address contributions to: Editor Round Table,* TEXTILE WORLD, *330 West 42nd St., New York 18, N. Y.*

Cooperation Leads to Efficiency and Savings

Much has been said and written concerning the desirability of cordial relationship between a departmental manager and the personnel director. It is obvious that misplaced workers are expensive experiments. A worker with aptitude and liking for his job needs little coaxing to develop loyalty, and a department manned by properly selected workers is usually a happy one. The time the departmental manager would ordinarily devote to training and incentive planning is lessened considerably. One phase of management becomes a pleasure instead of a burden.

Another spot where cooperation should be equally as close is too often ignored. Harmony between the departmental manager and the purchasing agent is essential. Without adequate and proper equipment, even a happy worker cannot do a good job; and he will not remain a happy worker if he is forced to use improper or cheap tools. Constant irritation and frustration can ruin the best disposition.

Many of the ideas for adjustments and improvements come from the man on the job. These, coupled with the observations and experience of the manager, form the basis for ordering new equipment or replacement parts for old. Since the worker and the manager are closest to the actual operation, in most cases their opinions are backed by superior, first-hand knowledge. Technical "kinks," which are readily apparent to the people in daily contact with an operation, can easily be overlooked by a casual observer.

If the observer is the purchasing agent, the "kinks" may not be overlooked, but their importance may be minimized in concession to price or availability. Substitute materials or parts purchased with an eye to price alone can be costly, far out of proportion to the original investment. In many instances, the actual cost is not known, since there may be no direct tie-in between the cost of replacement parts, material, operation, spoilage, etc. A dollar saved on the purchase price of an inadequate machine part may blossom into a production loss amounting to many dollars. Damage to morale of both the worker and manager cannot be evaluated in money.

A good purchasing agent has a pretty fair idea of the requirements of the operations for which he purchases. Being the focal point for most incoming literature and news on late developments, he has a comprehensive knowledge of machines, processes, and materials. Sales engineers, through experience in numerous similar mills, pass on valuable tips. One hazard to be avoided, however, is over-enthusiasm of these sources of information. Purchasing agents, at any time they are in doubt, should consult with the departmental managers.

Since the departmental manager and the purchasing agent are assumed to be efficient in their particular fields, their combined knowledge should be sufficient to solve most technical problems involving machine or parts expenditures. If each works independently, ignoring the capabilities of the other, much trouble can result, reflecting equally on both.

Time set aside for interchange of ideas between these two mill executives can be profitable to any company. *(R-396)*

(ROUND TABLE continued on next page)

TEXTILE TICKLES . . . . . *By Edgar Allen, Jr.*

"Your husband will be late tonight, Mrs. MacFoop—he's doing a lot of weaving!"

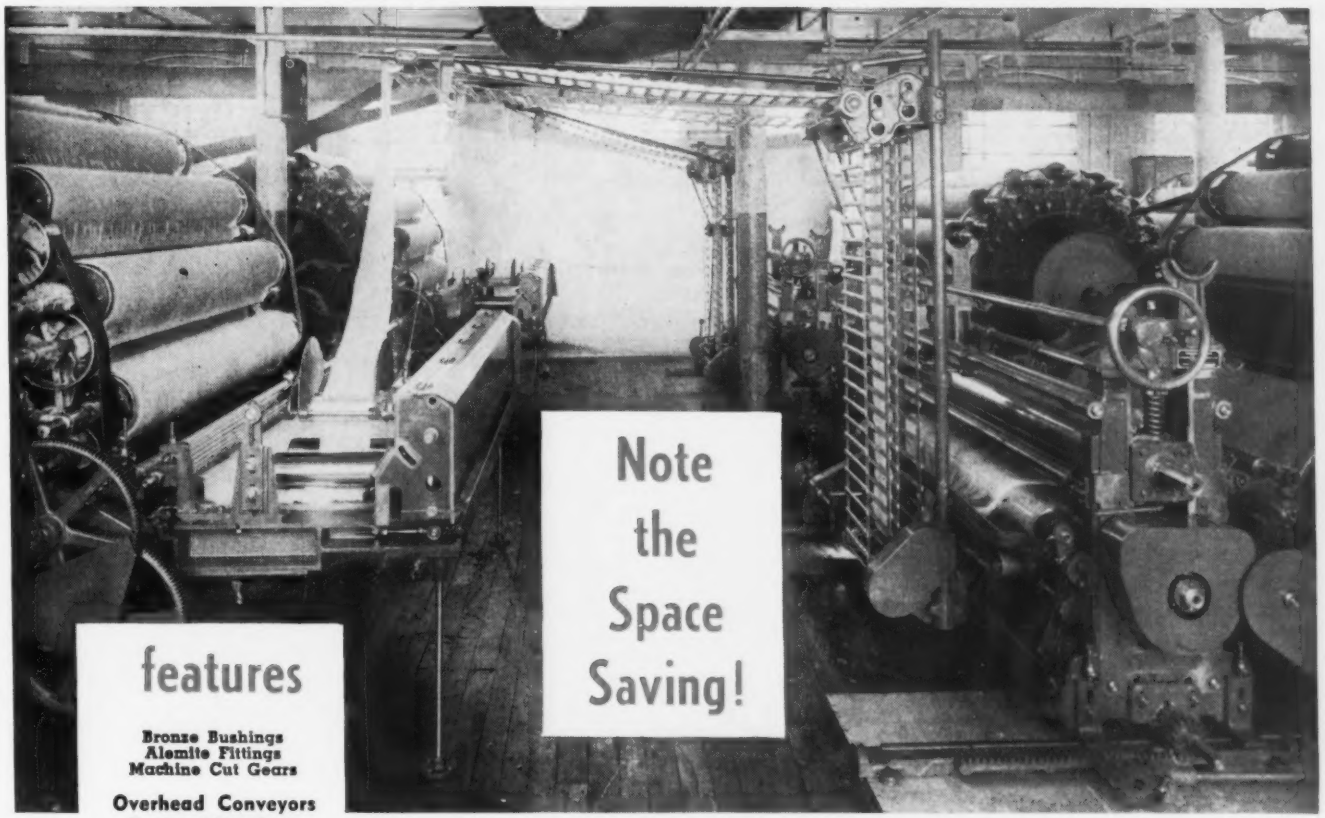
Duesberg-Bosson of America, Inc.

—manufacturers of the new

INTERMEDIATE CENTER

BROAD BAND FEED

TO FIT THEIR PATENTED PERALTA MACHINES AND EXISTING CARDS



features

Bronze Bushings
Alemite Fittings
Machine Cut Gears

Overhead Conveyors
Fastened Rigidly to Peralta
Two Vertical Supports Less Vibration
Oilless Wood Bushings
Heavy Roller Chain Drive
Jaw Clutch Aids Starting
Width of Woolen Band Adjustable—2" to 11"

Feed Table
Heavier Design
V-Belt Drive
Variable Speed Sheaves
Deeply Fluted Aluminum Rolls
Prevent Web from Sticking

● The Intermediate Center Broad Band Feed was designed by our engineers in Providence to fit the Peralta Machine. Also sold separately. Includes many improvements. Saves valuable floor space between Peralta Machine and the Feed Table.

Prices and Delivery on Request

Duesberg-Bosson of America, Inc.

351 Harris Avenue, Providence, R. I.

British Worsted Mills Have New Possibilities

Several factors, all relatively new, are showing definite influences on worsted yarns in Great Britain. For example, the use of alginate rayon has opened up an entirely new field to British spinners. In the past, they have built their reputations principally upon specialty yarns that gave unique effects in the cloth. The present seller's market is already showing signs of ending in some classes of goods, and spinners are again turning their attention to new yarns that can best be dealt with by the specialist's approach.

There has been marked interest in lightweight woolen fabrics and twistless yarns. Formerly, the required strength of very fine or twistless yarns had to be produced either by means of sizing, which involved an additional operation, or by employing a supporting yarn. Such a supporting yarn was difficult or costly to remove; the practice was to use a cotton yarn that could be removed by carbonizing or a cellulose-acetate yarn that could be dissolved in an acetone.

The great advantage of alginate rayon is that it is readily soluble in weak alkaline solutions. No more than an ordinary soap-and-soda scour is needed to remove the alginate yarn from the finished cloth.

Calcium alginate, made from seaweed gathered around the Hebrides islands and the Scottish West Coast, is the alginate most commonly used. It has been spun into yarns as fine as 50 den. *(R-369)*

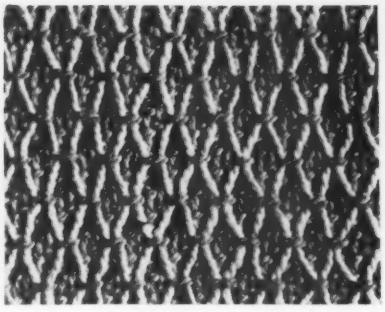
Questions and Answers Saves Reader Time

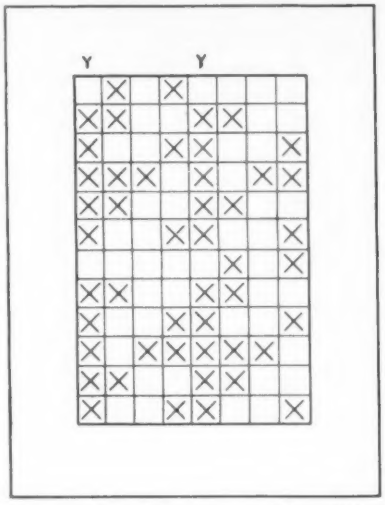
Thank you for your prompt attention, through the medium of TEXTILE WORLD's Questions and Answers department, to question No. 9169 [Full-Fashioned Machines Used For Knitting Neckties, page 184, May issue], which I recently submitted.

Needless to say, the information you provided has been of substantial service to me in time saved in locating and evaluating proper equipment. *(R-364)*.

Australian Mill Develops New Pattern

An interesting upholstery fabric with a double-face decorative cellular pattern that gives an appearance somewhat similar to a honeycomb has recently been developed in an Australian mill. The pattern is not very different from cellular patterns hitherto produced on only one side of the fabric by the use of eight harnesses, but considerable interest is added by the fact that the pattern cells are produced on both sides of the cloth. The cells may be woven from different-colored yarns on each side.





This sample of the "reversible-cellular" pattern was woven of heavy yellow yarn on a ground fabric of green. The reverse side of the sample has a similar pattern woven of the same color of yarn as was used in the ground.

The method by which the pattern (termed a "reversible-cellular" pattern) is produced was developed by Dr. Alfred F. Barker, of Barker Textiles Ltd. Patents covering the process are pending in Australia and other countries.

Various constructions are produced at the Barker mills, the combination of ground and decorative pattern lending itself to considerable versatility. If decorative yarns are of a different color from the color of the ground fabric, a pick-and-pick loom is used. A similar effect is obtained also by introducing decorative colors, two and two, on a box loom.

An interesting variation of using different colors has been that of using yarns of different fibers, such as wool and silk, wool and cotton, and cotton and silk. The different factors of these yarns permit a variety of novel effects. *(R-386)*

Square Root Factor Not Needed in Formula

The Round Table item *R*-383 [This Formula Calculates Required Picks per Inch, T W, Dec. '47, p. 168] presented a formula for calculating the required picks per inch of a new count of filling that would give the same weight of filling per inch as the previous number of picks gave with the old count of filling.

The formula given was: Required picks per inch = picks per inch of original cloth x the square root of (count of new filling ÷ count of original filling).

I think this formula is incorrect.

The example given was to find the picks per inch required to yield the same cloth weight if 50 p.p.i. of 12s filling were changed to 20s filling. The formula as worked out was:

$$50 \times \sqrt{20 \div 12} = 65 \text{ picks.}$$

The formula I derive for the purpose outlined is: Required picks per inch = picks per inch of original cloth x (count of new filling ÷ count of original filling). In other words, the formula given by *R*-383 would be correct if the square root values were not used. Worked out, this formula is:

$$50 \times (20 \div 12) = 83 \text{ picks.}$$

To prove the formula:

1. Width in loom x present p.p.i. = inches of present filling per woven inch.

2. Wt. in grains of present filling per woven inch

÷ Wt. in grains of equal length of new filling

x present p.p.i. = required p.p.i.

To substitute figures:

1. 36 in. (assumed) x 50 = 1,800 in. of 12s.

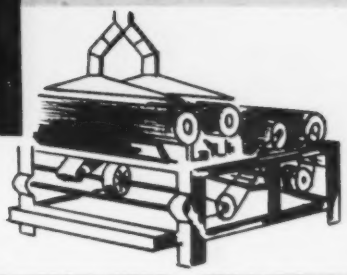
2. 34.7 gr. (wt. of 1,800 in. of 12s) ÷ 20.8 gr. (wt. of 1,800 in. of 20s) = 1.6682 x 50 (present p.p.i.) = 83 required p.p.i.

Note that in the last portion of the formula 50 x (20 ÷ 12) the values are reversed in the proof. Instead of 20s ÷ 12s, we have the weight of 12s ÷ the weight of 20s. This reversion is correct and necessary, since yarn weight is a direct value whereas yarn number is an indirect value.

The basic formulas for figuring yarn requirements, of course, are based on weight, as indicated in the proof given here. The formula in this case is : Weight of present filling x present picks per inch ÷ weight of new filling = new picks per inch.

However, the use of this formula involves considerable figuring and converting of yarn numbers to grains. The formula proposed here eliminates most of these calculations and the yarn-number conversion. *(R-395)*

Economize by Replacing SHEARING MACHINE Brushes with Fullergript Brush Strips



HERE ARE 4 WAYS YOUR MILL CAN REDUCE OPERATING COSTS

1. Less Maintenance Time. With Fullergript brush strips on your shearing machines you are no longer required to waste your maintenance crew's time removing worn rolls, then crating and shipping them. New Fullergript strips are attached directly to your cores.

2. No Shutdown Delays. Whenever new brush strips are needed, your maintenance man installs them immediately, and directly to the cores. The shearing machine is back in operation more quickly—and is never standing idle.

3. Brush Material Anchored in Metal. This means you are not bothered with shedding that shortens brush life. Fullergript retains its density.

4. Longer Life. With Fullergript the brush material is packed in a continuous mass — and as the amount of brush material is increased, the life of the brush is proportionately lengthened.

YOU will find it good business to ask our nearest branch office for detailed information about Fullergript brushes on shearing machines. Get in touch with us today.

FULLERGRIPT

INDUSTRIAL DIVISION
THE FULLER BRUSH CO.
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THIS IS NO. 68 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

EMULSION ATTACHMENT
For Roto-Coner*

Uniform moistening of the cotton yarn is achieved on the Roto-Coner* by means of an attachment which rotates the emulsion rolls at constant predetermined speeds.

The power to operate the rolls is taken from the cam shaft which has an approximate speed of 40 rpm, and is reduced by gears to two sets of driving sprockets (A in Fig. 2), one for each side of the machine.

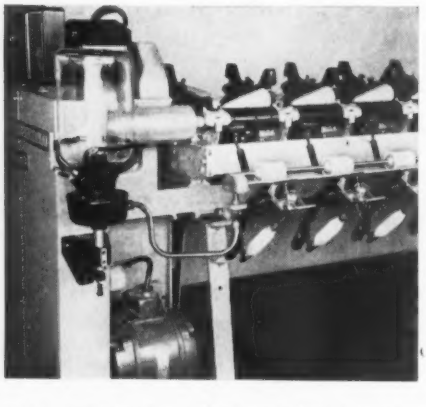


Fig. 1 Roto-Coner Emulsion Attachment, showing bottle mounted at head end, trough and rolls.*

These driving sprockets are connected by chain to sprockets (B) on the emulsion roll shafts.

There are three driving sprockets and three driven sprockets for each side of the machine. The ratios between driving and driven sprockets are 1-1, 5-3, 3-1. Since the gearing

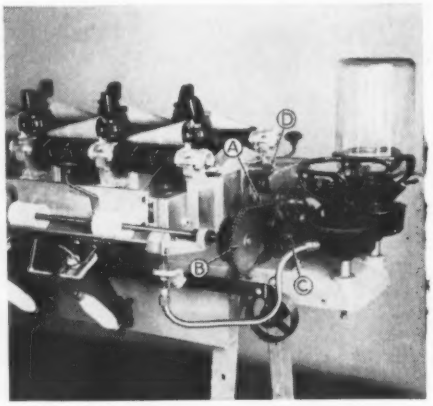


Fig. 2 Driving arrangement for Emulsion Attachment at remote end of machine (with gear housing removed). Note sturdy construction.

gives a driving sprocket speed of 9 rpm, the speed of the emulsion rolls can be 9, 5.4 or 3 rpm. The chains are easily changed from sprocket to sprocket as they are run rather slack and are provided with idler pulleys. (This arrangement also simplifies levelling and alignment of troughs and rolls.)

An arrangement of twin meshing gears — one on each driving sprocket shaft — provides a choice of emulsion roll rotation — with or against the yarn. The shafts on which the driving sprockets are mounted are arms of a "reversing lever", and this can be swung, after loosening a screw (C) from one side to another to allow either of the two gears to mesh with the cam shaft pinion (D). If the gear at the right of the reversing lever (when facing the drive head) is in mesh with the pinion, the rolls will turn with the yarn; if the other gear is in mesh, they will turn against the yarn.

With the roll running in the direction opposite to the yarn, the yarn naturally will pick up more emulsion than when running with the yarn. This fact provides a slight differential for each speed.

The mounting of the trough provides for both up-and-down and end-wise adjustment of approximately 1 in. each so that the entire trough can be given a true level and alignment from end to end. The machine itself should, of course, be in perfect level and alignment. Brackets for the emulsion bottles are provided with adjustment screws by which they are brought to the correct height. (Partially filling the bottles with water helps in establishing the level.)

The bottles may be mounted either at the head end on the sides of the drive head or at the remote end on the drive bracket. For a full-length machine, four bottles are recommended.

A splash guard, mounted at the back of the trough, drains excess moisture that drips from the yarn back into the trough, and the machine is, accordingly, kept clean.

*®

March, 1948

23-7-5

"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA CHICAGO LOS ANGELES MONTREAL and HAMILTON

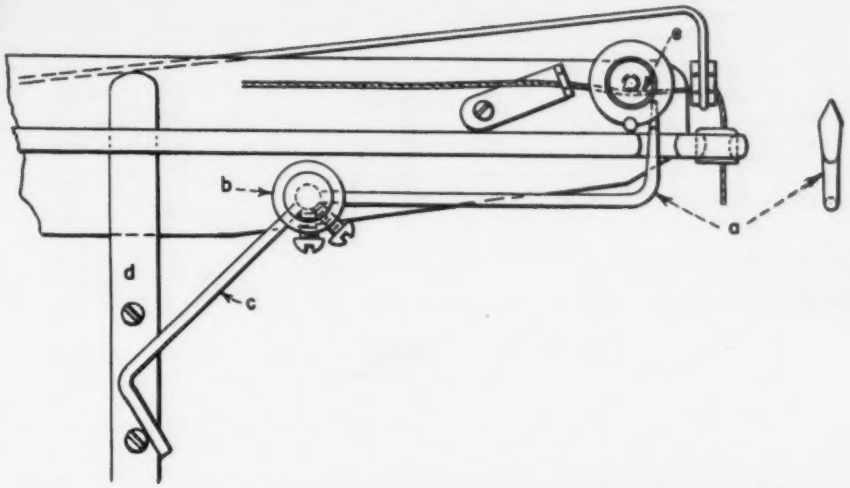
Kinks AND SHORT-CUTS

Tension-Disk Opener Operates From Thrust Bar

✱ **PRIZE WINNER FOR MARCH**
(January contest)

In the knitting of seamless hosiery, the practice is usually to knit either the entire stocking or from the cuff down with yarn from the same cones and to reinforce the stocking as desired with finer yarn. To obtain the most elastic cuffs and the best hand in plain knitting, a light tension is required. In order to prevent the yarn from flying over the top of the needle hooks during the reciprocating motion of the machine, additional tension must be applied at the disks, indicated at e in the accompanying sketch.

On most machines, these tension disks are opened from the back for ribbed or plain knitting; and adjustments are hard to make at that height because the opener points are difficult to see. A simple tension-disk opener that can be easily seen and which permits the disks to be opened from the front of the machine is shown in the sketch.



Yarn-tension disk e on a circular knitting machine can be opened from the front of the machine by an opening device similar to the one shown here. Opener a, secured to pivot b, is forced upward into e by the lowering of lever c in contact with thrust bar d.

Opener a is a flat, broad finger filed to a point at the center of the end. This point, when the opener is put into action, slides between the disks, forcing them farther open as the broader section of opener a engages the disks. Point a is raised or lowered by the turning of pivot b, to which a is secured. Pivot *b* is controlled in its turning by lever c, also secured to *b*.

Lever c can be used to operate one, two, or three openers, as required. Pivot *b* may accommodate single or multiple openers. If single openers are operated through *b*, it may be only a loose screw to which wires c and a are fastened. If more than one opener is operated through *b*, two to four collars may be inserted over *b* and anchored to *b* by the setscrews shown underneath. A set of c and a wires may then be secured to each collar on screw *b*. (In the sketch, two collars are mounted on the loose screw at *b*.)

As shown in the sketch, the disk-opening device is locked in position by an upward movement of thrust bar d, which brought the lower screw on *d* against lever c, holding a out of engagement with e. The upper screw on *d*, above wire c, serves as a stop to prevent c from raising too high and thus

A $25 SAVINGS BOND FOR YOUR KINK

✱ **You undoubtedly know of some kinks and short-cuts that are helpful to mill operation. Write them down and send them in. We pay promptly upon acceptance—*before* publication. In addition, we award *every month* a $25 Savings Bond for the accepted kink we consider most useful.**

Don't delay. Don't worry about dates. Send in your kink *now*. There is always a Savings Bond prize contest going on!

Don't take time to polish up your writing. We'll do that. Don't waste time to make a finished drawing, as our draftsmen will take over. Just write enough details and do enough drawing (if any drawing is necessary) to make clear to the editors how your idea works and what machine or process it is applicable to. Photos can be sent.

Look over the kinks in this and other issues. They will offer you some useful ideas, and they will also suggest other ideas you can send in. We like items that pertain to ways for improving machines, new devices that a mill man can build, attachments that are of merit—anything that will help production, improve quality, or cut costs.

Writing kinks is easy. It's fun. It's profitable. Give it a try. *Now*.

RULES OF CONTEST

1. No limit to number of entries.
2. New contest every month. Each contest closes with kinks received last day of the month. Prize winner is published the third succeeding month.
3. All kinks will be paid for on acceptance. Illustrations, when submitted, do not need to be finished drawings (penciled sketches are satisfactory); but they should be clear and complete. Prize awarded to winner is sent to him after publication. Good photos are acceptable.
4. Previously published material is not eligible for prize or publication.
5. Unless you advise to the contrary, we assume that we may sign your name to your kink when published.
6. Judges of the contest are editors of TEXTILE WORLD. Their decision is final.
7. Send your entries to either address:

TECHNICAL EDITOR
TEXTILE WORLD
330 W. 42nd St.
N. Y. 18, N. Y.

ASSOCIATE EDITOR
TEXTILE WORLD
P. O. Box 1641
Columbus, Ga.

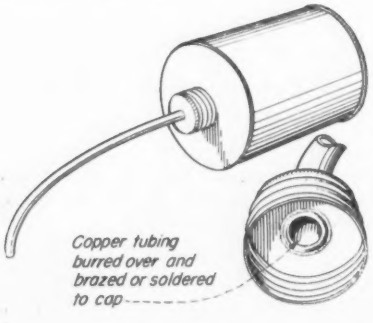
KINKS & SHORT-CUTS

(Continued from page 161)

permitting a to drop too low. On machines that lock the take-up down with a downward movement of bar *d*, the upper screw on *d* forces *c* downward. This action forces *a* upward to open the tension disks.

On machines that use a rod instead of flat bar *d*, collars with long setscrews can be used to operate the openers. *(K-797)* Walter A. Simond, Franklin, N. H.

Screw-Top Cans Make Oil Reservoirs



***An oil reservoir** can be made from a screw-top can, such as a beer can, by cutting a small hole in the top and soldering a length of copper tube in the hole. Mount the can on the machine housing above the bearing to be oiled, and place the other end of the tube in the bearing oil hole.*

Oil reservoirs that provide a continuous supply of oil to bearings can be made of beer cans or similar screw-top cans. The use of these cans, of course, eliminates periodic oiling with pressure cans. The reservoirs can be used satisfactorily for such applications as card-cylinder and doffer bearings and spinning-cylinder bearings.

To convert a can to an oil reservoir, obtain a length of copper tube that has a small inside bore. Remove the screw top of the can, cut a hole in it approximately the size of the outside diameter of the tube, insert one end of the tube in the hole, burr the end of the tube over inside the top, and solder it to the top. Fill the can with oil and place the other end of the copper tube over the oil hole of the bearing, and secure the can upside down to the housing of the machine either with straps or with a metal bracket welded or bolted to the housing.

A copper tube with a hole small enough to permit only slow dripping must be selected. *(K-799)* Wm. H. Mullen, Quincy, Mass.

Locked Switch Boxes Save Power Tools

***Unauthorized use of power tools** can be prevented by installing a toggle switch in the power outlet line. The switch should be inclosed in a box and kept locked.*

In many mills, employees are permitted to use company power tools for repairs to home appliances if the operator is competent and works on his own time. In many instances there probably should be no objection to this practice, but sometimes it is definitely a bad practice.

Many operators are not competent and cause damage to expensive machines. Machines that have a high accident potential should never be used by anyone except a skilled operator. Whether the unauthorized operator is skilled or not, the regular operator usually objects to such use of his machine because his settings are disturbed.

To prevent use of a power tool by unauthorized operators, a toggle switch can be installed in a regular switch box and kept locked. One key should be in the possession of the regular operator and another kept by the foreman. *(K-809)*

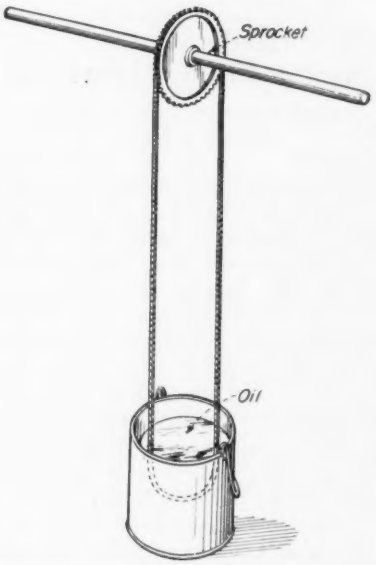
Recover Broken Needles With a Small Magnet

One of the occupational hazards faced by spring-needle knitting machine operators is puncture wounds from broken needles. When a smash occurs on the knitting machine, the needles and broken beards fly in all directions. If they are allowed to remain where they fall, they present a constant menace to the hands and feet of the operators. A good operator will try to locate the needles and put them in a safe place.

When the broken parts lodge under a jutting machine part or in other inaccessible place, it is often difficult to remove them with the fingers; and an operator on piece work does not like to take the time necessary to fish them out with a small tool.

If a small horseshoe magnet is available at each machine, the recovery of these needles is easy. Since needle wounds usually involve the time and trouble of submitting to first-aid treatment, most operators will be glad to use a magnet. *(808)*

Oil Card-Flat Chains For Best Performance



Card flat chains operate better and last longer if they are oiled about every 3 yr. An oil bath arranged as shown here is an effective and easy way to oil the chains thoroughly.

One of the mechanically weakest parts of a revolving-flat-top card is the flats and flat drive. Although the flats travel rather slowly, they comprise a considerable load. If they do not slide smoothly along the cylinder arches or do not turn freely at the front and back of the card, the load on the drive is considerably increased. Worn flats and unevenly running flats may result, either of which has an adverse effect upon the quality of carding.

We have found that oiling the flat chains periodically improves the performance of flats and prolongs the life of the chains. In England, the practice in grinding flats is to remove the flats from the card about every 3 yr. and grind them on a flat-grinding machine. While the flats are being ground is a good time to oil the chains.

However, in mills where the practice is to grind the flats with an emery roller while they are running on the card, it would be necessary to remove the flat chains for oiling or to oil them

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Enlarged photos such as above are a feature of the Warp Size Check-up Test, exclusive with Houghton. They show vividly what various size formulae do to improve fiber lay.

KINKS & SHORT-CUTS
(*Continued from page 162*)

when the flats are taken off the card for some other purpose, such as to reclothe the card cylinder or redraw or repair the clothing.

The method we use for oiling the flat chains is illustrated in the accompanying sketch.

A shaft is mounted in open bearings about 9 ft. above the floor and driven at 2 or 3 rpm. A sprocket wheel of the same pitch as the chain and having about 15 teeth is fastened on the shaft. The flat chain is placed on this sprocket, and a bucket of medium-light oil is placed on the floor directly under the sprocket so that the chain will dip into it to a depth of about 4 in. as the sprocket turns.

Each chain should run in this oil bath for about 3 or 4 hr. At the end of that period, the bucket containing the oil should be removed and an empty bucket put in its place. The chain should continue to run as long as oil drips from it. When the oil stops dripping, the chain should be taken off the sprocket and wiped thoroughly.

The chain is now ready for use. Each link will be perfectly loose and well enough oiled to run another 3-yr. period. *(K-798) O. Gloessner, Manchester, England*

Courses in Knitting Machine Recorded on "Memo" Board

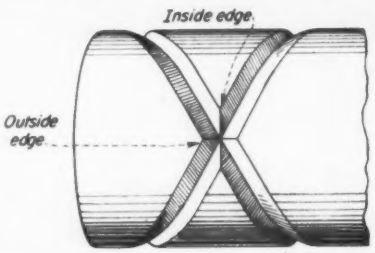
Knitting courses currently in a machine should be recorded on a small blackboard mounted on the machine. Such a record, changed by the fixer as he changes the number of courses, saves time, work, and production lost in stopping the machine to check the courses.

In a knitting room in which a variety of fabrics is run the problem of keeping track of the number of courses in each machine is complicated. When yarn lots run off standard, either heavy or light, compensating adjustments have to be made in the coursing. This complication makes it more difficult to keep in mind the number of courses in individual machines. If a machine must be stopped each time a check of courses is made, production is lost and the operator loses some earnings.

A simple but effective means of eliminating such machine stoppage is to attach a "memo" board to the belt guard or other convenient place. The board can be made of plywood or wall board and painted a flat black so that chalk will make a clear mark on it. The number of the machine or head should be permanently printed on the board with white paint.

When the machine is set up on a new style or an adjustment is made on an old one, the new number of courses is recorded on the board by the fixer. Thus, when the fixer or foreman has occasion to check the courses, he needs only to read the figures on the board instead of stopping the machine and checking the fabric itself. *(K-804) Albert M. Young, Jr., Philadelphia, Pa.*

Grooved Winder Rolls May Need Turning Down



Grooved winder rolls that have been damaged by harsh yarns such as mohair can be repaired by turning the grooves down on a lathe and finishing the yarn path with a file or stone.

Hair yarns such as alpaca, mohair, and camel hair are abrasive and therefore injurious to the machine parts with which they come into contact. This is particularly true on winders where the yarn-travel speed is great. Mills running these types of yarns usually have a higher winder maintenance cost than plants running cotton or other soft fibers.

Winders employing the grooved roller to make the traverse pattern do a fine job on hair yarns. The steel rollers wear well, but even steel has its exhaustion point. When the edges of the grooves are worn down at critical points, the yarn will run out of the grooves. Ribbon winds and other defects result.

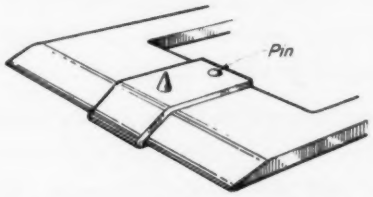
The critical point on this type of traverse is the point at which the grooves cross, sometimes described as the middle of the X. Constant friction at this point gradually wears the groove edges round and lowers the inside portion of the X below the level of the outside edges. When this condition occurs, the yarn is supported by the higher outside edge and is pulled out of the groove. The yarn will eventually find another groove, but the winding pattern will not be positive. Odd-shaped packages will be obtained.

Traverse rollers that develop these faults can be restored to usefulness. Turning down the roller in the lathe will level the inside and outside parts of the traverse pattern. After the outside parts are turned to the level of the inside parts, a little deeper cut will remove the rounded edges from the inside part. The edges of all grooves should then be finished by hand with a file or stone. A slight rounding of all edges is necessary to prevent cutting the yarn. *(K-807)*

Drop of Nitric Acid Indicates Monel Metal

It is sometimes desirable to distinguish between stainless steel and monel metal. A quick way to determine which of the two types a metal is consists in dropping a drop of nitric acid on the metal. If it is steel, nothing will happen; the spot where the acid was dropped will remain as it was. If it is monel metal, the spot will turn a greenish color indicating the copper alloy. *(K-802)*

Lip of Handtruck Has a Safety Stop



Sliding of boxes or bales from the lip of a handtruck during a haul may often be prevented by a stop fastened to the lip as shown here. In applications where such a stop is practicable, it often helps to avoid accidents.

Using an ordinary handtruck for handling heavy boxes or bales sometimes results in accidents. Usually the lip of the truck is run under one edge of a box and the box pulled over onto the truck. If the edge of the box slips off the lip during the haul, an accident to the trucker can easily occur.

A stop similar to the one shown in the accompanying sketch is sometimes a valuable safety device for the lip of the handtruck. Of course, such a stop

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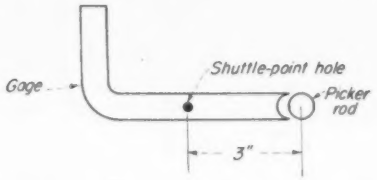
KINKS & SHORT-CUTS

(*Continued from page 164*)

cannot be used if the box or bale cover is so thin that the stop will break through; but for many uses, the stop is effective.

To make such a stop, secure a piece of plate steel 1½ in. wide, ⅜ in. thick, and about 9 or 10 in. long. Heat and bend the steel in the shape shown in the sketch. Now drill a pin hole through both sides of the open end of the bent piece and through the lip of the handtruck. Fasten the bent piece to the lip with a pin, bradding the two ends of the pin. Drill a hole near the outer end of the top side of the extension and press in or weld in a pointed stop about 1 in. high. *(K-802) William H. Mullen, Quincy, Mass.*

Use a Picker-Rod Gage For Setting New Picker



A picker-rod gage that accurately measures the distance a picker rod should be set from the shuttle removes guesswork in adjusting a new picker.

Setting a new picker on a drop-box loom is simple if a picker-rod gage is used. To make such a gage, a length of steel rod of sufficient diameter to insert through the picker guide rail is required.

Make the gage as shown in the accompanying sketch. One end of the rod is flattened out and a concave opening the same diameter as the picker rod is formed in the end. This end fits against the picker while the gage is being used to measure the position of the shuttle spur, the gage being moved from the front to the back of the shuttle box.

If the distance between the picker-rod center and the spur point is 3 in., the gage should measure 3 in. from the curved end to the spur-point center. At spur-point center, drill a small hole about ⅛ in. deep so that the shuttle spur can be seated while the measurement and required adjustment to the picker-rod stands are made.

To use the gage, insert it through the picker guide rail so that the concave end fits against the picker rod. Turn the handle end of the gage until it points vertically. Move the shuttle into the box until the shuttle point centers the ⅛-in. hole. Adjust the picker-rod stands up or down and in or out until the gage is in such a position that the concave end is firmly against the picker rod and the ⅛-in. hole continues to be centered by the shuttle point. Move the gage and shuttle to the back of the box and adjust the stands for that point also. The shuttle box must be in correct height with the race.

If the picker rod is adjusted in this manner, the picker will be in the proper position. *(K-789) H. E. Wenrich, Berwick, Pa.*

Replace Babbitt Bearings With Bronze Inserts

The main shafts on many knitting machines run on babbitt fillers in the bearings. Since the main shaft is usually run at a slow speed, this type of bearing gives fairly good service. However, the bearing surface does have to be replaced now and then; and repouring the bearing is a difficult job, particularly if so few bearings are repoured that no one around the mill has occasion to learn the proper technique.

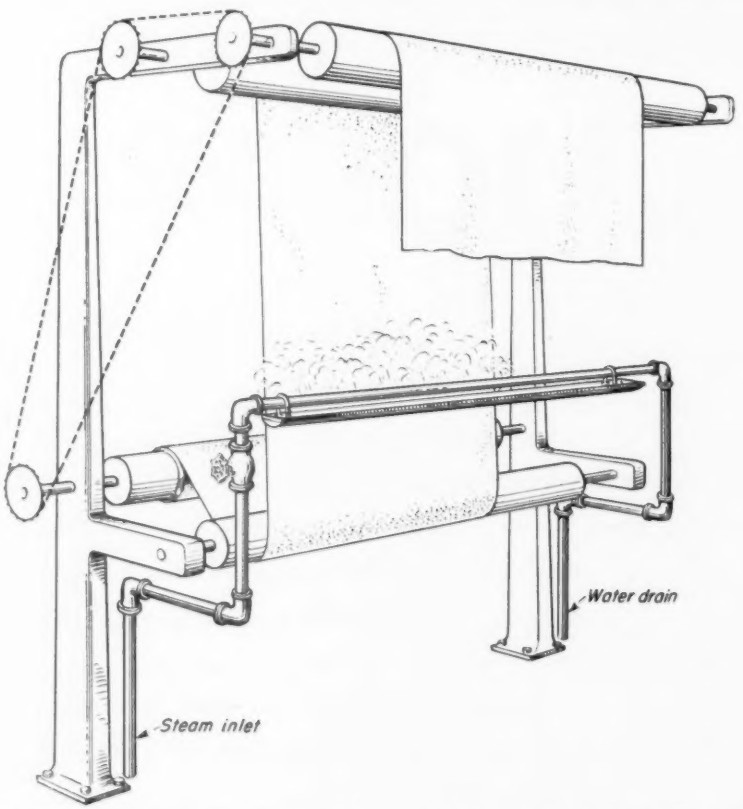
A better and longer-lasting bearing filler can be inserted with less trouble. Bronze bearings can be obtained in various inside and outside diameters. To substitute bronze for babbitt, all that is necessary is to grind the babbitt-retaining lip from the hanger and bore the hanger to the desired diameter. The bronze bearing is then tapped into place and secured to the hanger by screws.

Once a hanger has been converted to take a standard-size bronze bearing, future replacements are easy. The old bearing is simply knocked out and the new one inserted. *(K-805)*

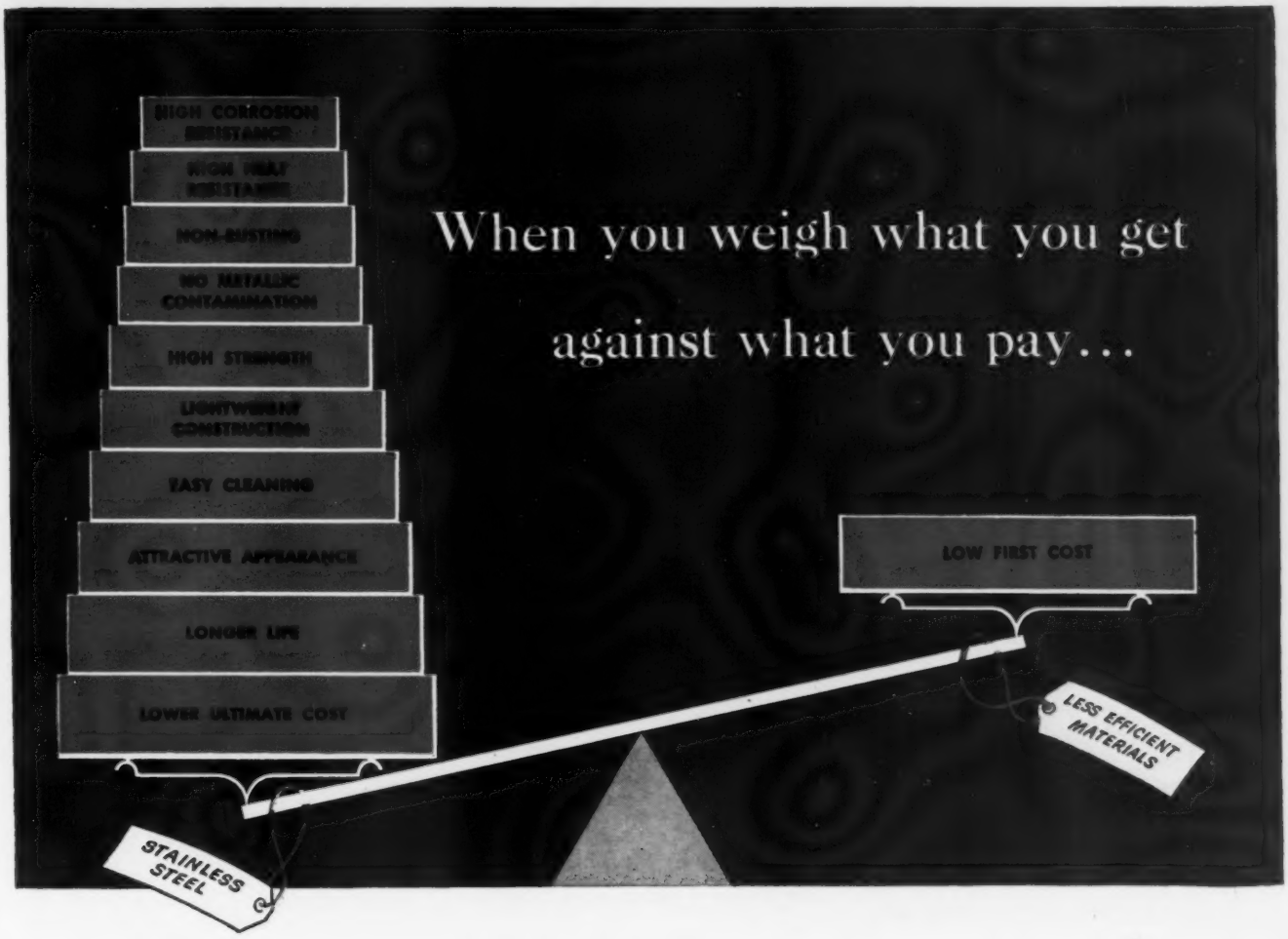
Steam Pipe on Shear Removes Laying Wrinkles

Often when a truckload of cloth has been dried and is ready for the nappers or shears, the operator cannot run it at once; and the cloth must remain in the truck for some time until the machine is free. Wrinkles are likely to develop where the cloth is folded. Removing the wrinkles sometimes requires that the cloth be sent back to the steam box, which, of course, is an extra operation and increases the processing cost.

These laying wrinkles can be removed by a steam pipe installed at the back of the shear or napper, as shown in the accompanying sketch. The pipe is provided with a cut-off valve so that the operator can turn on the



Wrinkles may be removed quickly and economically from cloth that has been prepared for shearing or napping by steaming it at the back of the shear or napper. The arrangement shown here permits live steam to be blown over the back of the cloth as it is running on the machine.



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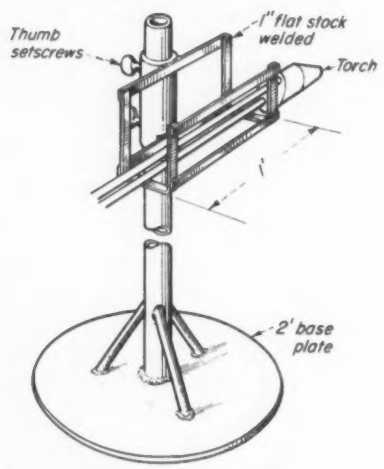
steam when he is running wrinkled cloth or shut it off when he is running cloth that is not wrinkled.

To install such a steam pipe, secure the necessary ¾-in. pipe and fittings and tap one end of the line into the steam system and the other end into the condensate-return system or sewer line. The section of pipe that runs across the machine should be located within 2 or 3 in. of the back of the cloth. In the side of this section of pipe nearest the cloth, drill a line of small holes for live steam to escape. These holes should be small enough for the escaping steam to blow against the cloth and close enough together for the steam to cover the whole width of the running cloth.

Directly under the horizontal pipe install a drip pan to catch condensate. This pan can be removed at intervals and the condensate disposed of, or the condensate can be drained off by a separate pipe and disposed of in the sewer.

As a safety measure, the entry end of the line should be insulated to guard against the possibility of burns. *(K-792) Paul W. O'Neil, East Chelmsford, Mass.*

Adjustable Torch Stand Is Labor-Saving Device



***An adjustable stand** for holding a gas torch while heating a pipe or shaft to be bent often saves the work of one man. Such a stand can be made of a long length of 2-in. pipe and a short length of 2½-in. pipe as shown here.*

In bending pipes or shafts or on other jobs where gas torches are used to heat heavy work, it is frequently an advantage to have an adjustable stand for holding the torch while the heating is done. By using such a stand, it is often possible for one man to do a job that would require two men if the torch were held by hand.

One type of an adjustable stand is shown in the accompanying sketch.

To make the stand, weld a 4-ft. length of 2-in. pipe upright in the center of a 2-ft. cast-iron or steel-plate base. Brace the pipe by welding stiffeners to it and to the base as shown in the drawing.

Now secure about a 6- or 8-in. length of 2¼- or 2½-in. pipe to slip down over the upright pipe. In one side of the short pipe drill and thread holes for two thumb setscrews, and on the other side weld a bracket for holding the gas and air lines of the torch. This bracket can be merely an open bracket into which the torch lines can be laid, as shown in the sketch, or it can be regular hose clamps secured to the short length of pipe.

To use the stand, place the short length of pipe over the upright pipe and tighten the thumb setscrews. Now place the torch lines in the bracket. Adjust the short pipe up or down as the height of the work demands. *(K-800)*

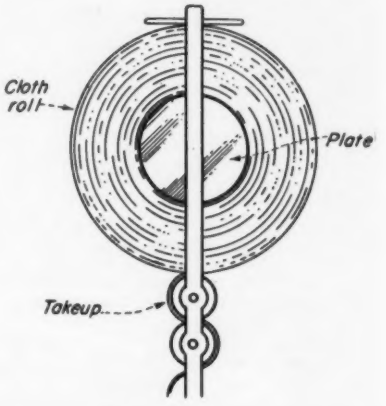
Plates at Ends of Cloth Roll Prevent Tearing of Cloth

On spring-needle knitting machines, the cloth is often torn when it is being rewound after slackening for mending or stitching-on. Other tears may occur if the soft center of the roll bulges out as the roll gets larger. At times, the first three or four laps around the take-up roller will be forced out by the mounting weight of the roll as the cloth is being knitted. The revolving motion of the roll rubs the cloth against the sides of the take-up and either wears a hole or leaves a frayed effect. If the protruding cloth exerts enough pressure against the take-up channel to allow the roller pin to work free, the roll will fly out. A heavy roll can cause serious injury or major machine damage.

These damages can be prevented by having cloth-retaining plates available to the operators. The plates are easily made of galvanized sheet stock; short ends and scraps can be used. To make one, cut a 6-in. circle of sheet metal and bore a hole in the center a little larger than the take-up-roller pin. The hole should be large enough to allow the plate to spin freely on the pin. Smooth the edge of the plate so that there will be no rough places or burrs to tear the fabric. For most fabrics, a 6-in. plate is a good standard size; but a particularly bulky fabric may bulge to a greater diameter, requiring larger plates.

When the plates are used, a new roll is started and built up to about 6 in. It usually will retain its shape to this point. The machine is then stopped, one end of the roll lifted out of the take-up channel, and the plate slipped over the pin. The pin is then replaced in the channel. This procedure is repeated on the other side of the take-up roller.

To remove the plate when a roll is being taken down, the procedure is reversed. The roller pin is lifted from the channel and the plate slipped off and dropped on the floor. *(K-806) Albert M. Young, Jr., Philadelphia, Pa.*



***Bulging cloth** on the take-up roll of a spring-needle knitting machine often becomes torn or frayed and occasionally causes the roll to fly out of the take-up-roll channel. Such damage can be avoided by using 6-in. sheet-metal plates at the ends of the cloth roll, as shown here.*

Blackboard Record Ends Shop Confusion

In many mills considerable time is lost because repair jobs are not turned out on time by the machine shop. It happens frequently that rush jobs are passed up and jobs on which the time element is not so important are turned out first.

This lack of efficiency is due in many cases to confusion and lack of system in designating the relative importance of jobs. One way to avoid such confusion is to use a large blackboard mounted in a convenient location for keeping a record of the jobs in the shop.

One man, usually the foreman, should receive all jobs and list them on the board. He should enter the date and time that the job was received, the date and time it is needed, and the date and time when the job has been finished.

With such a record convenient, everyone is in a position to know the status of any particular job, and "buck passing" is difficult. *(K-801)*

To the Textile Industry

Two very different textile fibers are now being offered to the public as "rayon." One of them is known chemically as viscose, or regenerated cellulose, the other as cellulose acetate.

Today these two man-made fibers may be found in retail stores in the same types of apparel and home furnishings, such as women's dresses and underwear, men's suits and shirts, linings, bedspreads, curtains, and upholstery. Viscose and cellulose acetate differ widely in most physical and chemical properties of importance to the consumer. They are not interchangeable in any use with the same degree of serviceability. They are, in fact, about as unlike as any two natural fibers one could name in such critical qualities as moisture absorption, shrinkage, resistance to wrinkling, soiling, mildewing, ease of washing and ironing, and ability to hold an ironed-in-crease.

In Tennessee Eastman's opinion, it is unfair to offer two such diverse textile materials to the public as if they were one and the same substance, especially under a name which for a long time connoted only one of them.

For many years after its introduction, "rayon" had general acceptance in commerce as the name for yarns and fabrics made of viscose. Thus used over a long period, the word acquired a definite meaning which was helpful to both the seller and the buyer. It was specific and informative, just as are the words "cotton," "silk," "linen," "wool," and "nylon."

In later years, however, attempts have been made to extend the common commercial meaning of "rayon" to include not only all types of regenerated cellulose, but cellulose acetate fibers as well—for no better reason than that they all happen to be man-made fibers of cellulosic origin. This classification on the basis of origin is of little significance even to a scientist. It is not a practical guide to a woman buying a slip or a bathing suit, nor to a man selecting a summer suit. On the contrary, it is quite deceptive because the inference is that a garment labeled "rayon" will have essentially the same qualities, whether it is composed of viscose or acetate yarns.

Recent developments in synthetic textiles and their uses now make it more important than ever before that the consumer be able to discriminate between cellulose acetate and viscose fibers. Tennessee Eastman does not wish consumers to be misled into ascribing to its acetate fibers properties which they do not possess, and foresees that new competitive disadvantages and consumer dissatisfaction will result if the buying public ascribes the properties of acetate to other fibers.

In an attempt to remedy what is now an increasingly serious situation, the Tennessee Eastman Corporation desires to put this matter of nomenclature clearly before the trade and the consumer, and to encourage the restriction of the word "rayon" to its original, long-accepted meaning in textile commerce.

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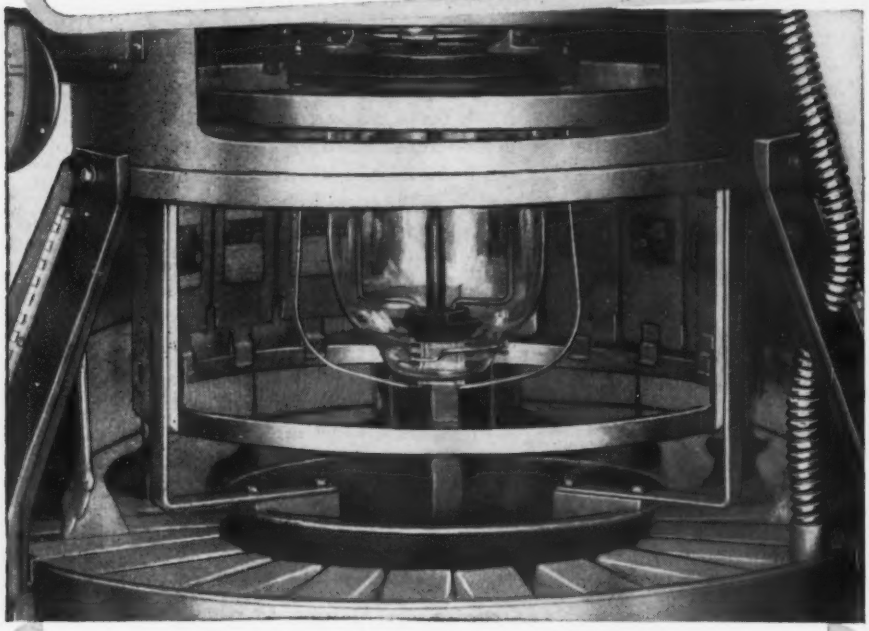

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Lay-In Cloth Is Produced By Teaming Alternate Feeds

Technical Editor:

Since there is available so little technical matter on the subject, will you discuss in your column the tuck and welt process used in making lay-in cloth on a circular latch-needle, sinker-top, pattern-wheel knitting machine? In particular, describe the method of feeding the lay-in yarn to produce a jersey back and a laid-in face.

I should also like to know whether or not a method has been developed whereby the dial needles on a rib machine are manipulated individually. (9224)

Lay-in cloth is produced on a sinker-top, pattern-wheel machine by teaming alternate feeds. The first feed forms the plain or tuck stitches; the second introduces the lay-in yarn. Choice of pattern is optional. A typical fabric, selected for discussion here, employs a 1-and-1 tuck jersey outside with 3-and-1 lay-in inside.

Design wheels have slots around their perimeters to accommodate jacks. On the first feed, the jacks select the needles that are to knit. In the 1-and-1 set-up, a jack is inserted in every other slot in the design wheel. The needles are normally raised by the cams to a tuck position; and at this position, the needles contact the design wheel. At each slot where a jack is in the wheel, the needles will be carried to knitting height; but at each slot where there is no jack and the slot is open, the needle will remain at tuck position and take on the same yarn as the knit needles. All needles are drawn down by the stitch cam.

Forming the plain jersey stitch is accomplished by raising all needles high enough to take the yarn and then lowering them by cam action below the sinkers. This process makes a complete plain jersey stitch.

Tuck stitches are formed by raising the selected needles high enough to take the yarn but not high enough to cast the stitches off the latches. All needles are then drawn below the sinkers, and the yarn is drawn through the preceding loops.

These needle actions, controlled by

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Photo Courtesy Liberty Throwing Company

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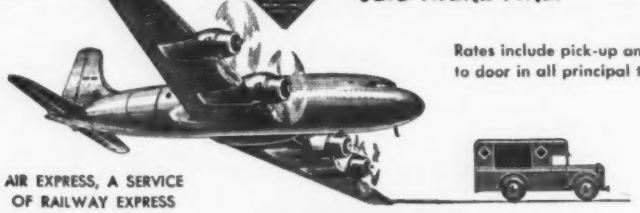

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a 1-and-1 design wheel, result in a stitch on the first needle, a tuck on the second, stitch on the third, tuck on the fourth, and so on around the circumference of the cloth.

In making a 3-and-1 lay-in, the design wheels again select the needles that are to receive the yarn. The design wheel that controls the 3-and-1 lay-in is mounted at a lower level than the wheel used for making tuck stitches. The wheel raises the selected needles to approximately a tuck position, or high enough to take the lay-in yarn. The other needles remain down, and the lay-in yarn is drawn down behind these needles, forming a float over the three needles that remain in the low position. The stitch cam draws the lay-in yarn below the sinkers, but not low enough to cast off the previous stitch. It does not form a loop with ensuing stitches but is entwined with them.

When a fleece or other fabric that requires a dense face is being produced, the lay-in pattern is staggered to provide maximum cover.

Several years ago, the H. Brinton Co. developed and marketed a machine on which the dial needles were individually controlled. Pattern wheels rotating in a vertical plane actuated the horizontal dial needles. A number of these machines were sold and put into production. While the venture was successful mechanically, there was no appreciable demand for fabrics patterned on both surfaces.

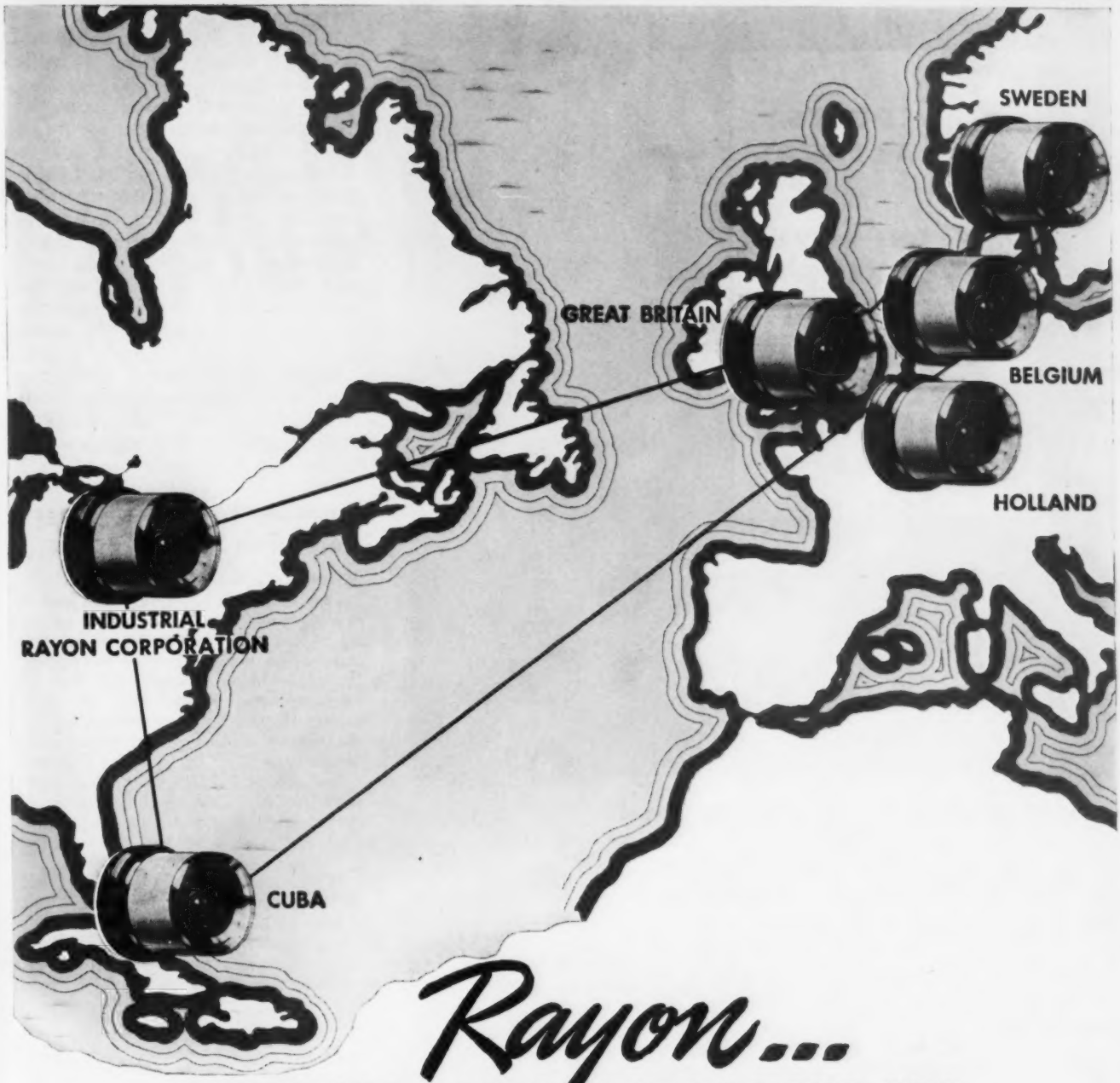
To Eliminate Weighing Is One Aim of Fiber Sorter

Technical Editor:

Can you give us any information on the fiber sorter mentioned in the Round Table department of TEXTILE WORLD, August, 1945, page 156? (9225)

The fiber sorter mentioned in the August, 1945 issue of TEXTILE WORLD has been used successfully in many practical fiber-length analyses of raw cotton; rayon; picker, card, and comber products; and wastes. Details of patenting, manufacturing, and marketing the sorter are now being worked out.

The objectives sought in the design and construction of the sorter are: a reduction in the time required in making a fiber-length analysis with the drop-comb type of sorter; elimination of fiber stretch and breakage; more consistent and comparable fiber-length results; less technical skill required to make a reliable analysis; no weighing, measuring, and computing individual length-group values, thus reducing many present personal errors; a



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IN the early years of this century America was completely dependent on Europe for the manufacturing methods that made possible the establishment of an American rayon industry. Today, rayon producers from all over the world are looking toward America for the greatest advance in manufacturing the industry has known—Industrial Rayon's Continuous Process. On its ingeniously designed thread advancing reels, rayon yarn is processed mile by mile—perfect inch by inch. Because of its many advantages, patent rights to this process already have been purchased by leading producers in Great Britain, Cuba, Sweden, Belgium and Holland. Now, rayon begins to ride the reels across the sea.

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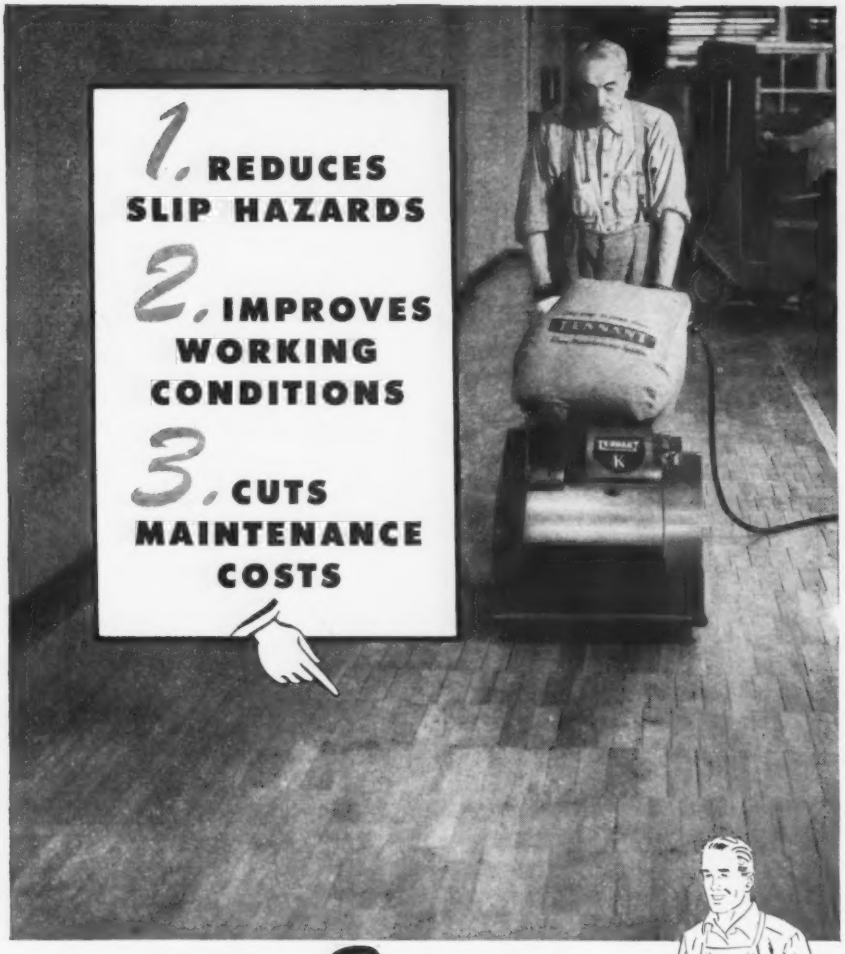

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rapid method of obtaining maximum, upper-half mean (classified length), total mean, uniformity ratio, and other length values; and a graphic record of fiber outlines and lengths for future reference.

The principle of the method is based on the premise that if a fiber array can be laid down containing approximately the same number of fibers in each equal unit section of array, measured along the base line, the upper fiber line will indicate directly the fiber-length values of the specimen.

All desired fiber-length values can be obtained from measurements taken at indicated points of either the array or the graphic record, with no weighing and very little computing.

Finishing-Foremen's Wages Depend on Several Factors

Technical Editor:

Our company is a finishing plant located in a geographical area where there are no other plants that do similar work. We therefore are not in a position to compare the salaries of our foremen with those of foremen doing similar work in other plants. Do you have any information on the subject of salary scales in finishing plants?

We process 100,000 yd. of gray print goods per day, finishing them into book cloth, label cloth, shade cloth, etc. All the goods are heavily filled, and most of them are friction calendered and embossed.

We are interested in learning something of the approximate salaries usually paid supervisors of bleaching, padding, calendering, and inspecting. These supervisors in our plant each have about 50 employees under them. (9226)

There is no clear-cut answer to this question, since there are no standard rates for finishing overseers or divisional superintendents. Much depends upon the individual himself, his knowledge of the work and of finishing in general, the amount of responsibility placed upon him, and whether he is just beginning in his present position or has occupied it for some time.

Much depends also upon the organization in the plant. An overseer in one plant may merely carry out orders and operate his department in a routine way. An overseer in another plant may be completely responsible for all the operations and chemical formulas.

In general, where a man is in a responsible position, the starting salary is usually in the neighborhood of $3,000 to $3,500 a year and ranges upward to $6,000 to $7,000 a year, depending on the individual's ability, length of service, the plant's organization, and other factors. In large

(*Continued on page* 180)

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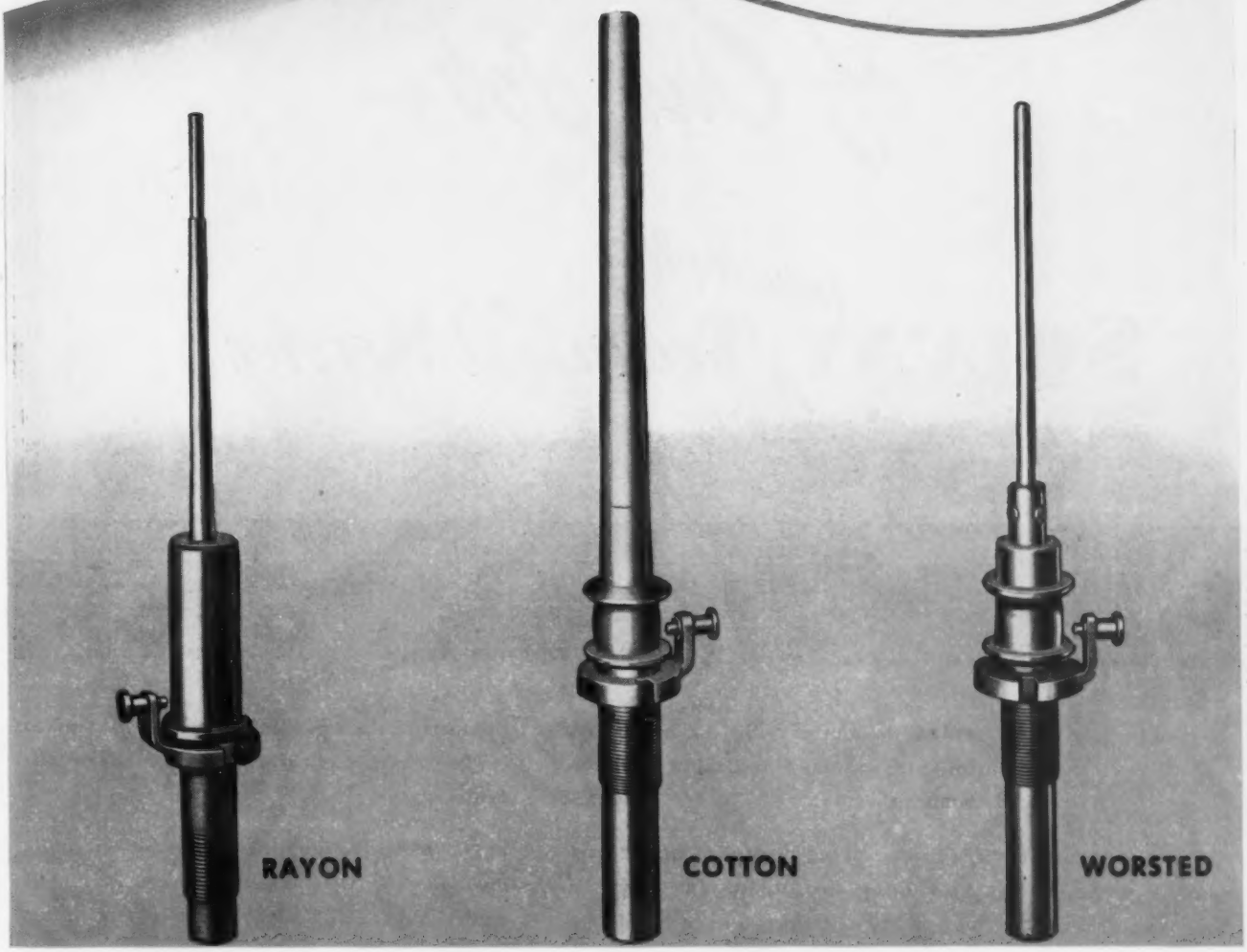

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MANUFACTURERS' BULLETINS

A REVIEW of the month's outstanding trade literature. Items are listed one month only—no repeats.

Free FOR THE ASKING

1. Wrinkle-resistance in textile fabrics may be measured by Monsanto's new wrinkle-recovery tester. Data on its operation are given in a recent technical bulletin.

2. Up to 2,000 lb. is the capacity of Yale & Towne's new KM 30-2 tilting-fork truck. Specifications and illustrations of its construction features are contained in a recent folder.

3. Troffer luminaires for fluorescent lights, water coolers of various types, and a booklet of tables and formulas are among the Westinghouse items described in a recent issue of the *Wesco Reporter*.

4. Oil-spray conditioning and/or tinting of fibers under all manufacturing procedures by the Breton Minerol process, with maximum safety in finishing, is discussed in a new illustrated booklet issued by Borne Scrymser Co.

5. Inter-floor transportation by use of the Nordyke service elevator, a unit requiring less space than a conventional service elevator or stairway and said to operate on 20 to 50¢ per 24-hr. day, is discussed in a recent Allis-Chalmers bulletin.

6. Radial-thrust, self-contained, preadjusted roller bearings, DB series, in which concave rollers operate between convex raceways, are described in booklet 2196 offered by Link-Belt Co.

7. A lightweight fork truck which can be carried between floors with full load on a 2-ton elevator and which can operate in narrow aisles is described in a folder offered by Baker Industrial Truck Div. The FQH truck sells, complete with battery and charger, for $2,791.

8. The new M.1 spinning frame of Platt Bros., Ltd., offered with a choice of 4-roller, single-apron, or Casablancas type long-draft systems is described and shown in a recent booklet.

9. Absorption of occupational noise by a new ear protector is said to increase employee production and morale, according to a folder announced by Industrial Products Co.

10. Skid platforms, semi-live skids, and wheeled trucks of Ironbound Box & Lumber Co. are shown and described in a recent booklet.

11. Shaped underwear made on Mellor Bromley rib-jacquard machines is described and shown, along with features of the machine, in a booklet offered by the company.

12. Molded rubber connectors and receptacles of various types are shown and described in a recent catalog and price list issued by Mines Equipment Co.

13. Finding where and how to use materials-handling equipment is discussed step-by-step in Towmotor Co's. "Materials Handling Analysis Guide."

14. Abrasion of specimens uniformly from every azimuthal direction is claimed for the Schiefer abrader described in a booklet prepared by Sherman W. Frazier.

15. Vibration control through use of Neoprene pads is described in a recent issue of *The Neoprene Notebook*.

16. Hand trucks which roll on wheels on flat surfaces and on a caterpillar tread on stairways, the Escort series, are shown and described in a folder offered by Stevens Appliance Truck Co.

17. Synthetic organic chemicals made by Sharples Chemicals Inc. are listed and their properties fully described in a 68-page catalog issued recently.

18. Saddles of various types for conventional and long-draft spinning frames are shown in a leaflet offered by Dixon Lubricating Saddle Co.

19. Pallets, pallet boxes, tiering collars, corner markers and guards, skids, and magnesium dockboards offered by Pallet Systems, Inc., are covered in a series of data sheets.

20. Synthetic organic compounds derived from coal chemicals, their properties, reactions, and uses are presented in a general bulletin offered by Koppers Co.

21. Vapor absorption and conditioned-air systems are described in a new illustrated booklet available from Sims Metal Works.

22. Carton-top closing by use of the Steelbinder wire stitcher is discussed in a leaflet issued by A. J. Gerrard & Co.

23. Operation recorders, their selection and use are fully discussed in a recent issue of *The Graphic*, publication of Esterline-Angus Co., Inc.

24. A 1948 price list for over 1,200 tests arranged alphabetically beginning with abrasion, acoustics, adhesion, and ending with X-ray, yardage, and yarn tests has been issued by U. S. Testing Co.

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25. Pallet loading by hand can be elminnated through use of the new automatic pallet loader described in a folder available from Production Aids, Inc.

26. A. C. voltage regulators and Nobatrons, their application, circuits, and construction are discussed in a series of six pamphlets perpared by Sorenson & Co.

27. Loom-motor pinions of oil-tempered, hardened steel in various sizes for GE or Westinghouse motors are listed and priced in a catalog sheet available from Laminated Sheet Products Corp.

28. Lightweight Magcoa dockboards made of magnesium are shown in use and described in a folder available from Magnesium Co. of America.

29. A fire-fighting equipment unit transported by lift truck, and a rayon-fiber fire started by a broken bulb are described in a recent issue of *Factory Mutual Record.*

30. Use of Lykopon as a reducing agent in vat dyeing is discussed in a recent issue of *The Rohm & Haas Reporter.*

31. Conveyor operation at predetermined variable speeds is made possible by the Syncro-Drive, described in a folder offered by Richards Wilcox Mfg. Co.

32. An edging machine for sanding and finishing in hard-to-reach places, which has a conical sandpaper disk, is shown and described in a leaflet available from G. H. Tennant Co.

33. Industrial uses of nylon with accompanying data on its properties are covered in a 30-page booklet prepared by Du Pont.

34. A materials-handling prime mover, gas powered, on which can be mounted a stake platform body, a bucket, or a snowplow is described and shown in action in a booklet published by Bell Aircraft Corp.

35. Metal skids, boxes, and pallets are shown in action in handling material in a folder issued by Union Metal Mfg. Co.

36. A French-language general catalog, "Specification Index for Bristol Instruments," is available from Bristol Co. Automatic controlling, recording, and indicating instruments, their uses and specifications, are covered.

37. Determination of dye solubility is the subject of a recent Calco Technical Bulletin. A method of determining solubility is given, as well as a table of solubility of a large number of Calco's acid and direct dyes at 60° C.

38. Lowered cost through improved handling methods is discussed in a booklet describing the services of Preben Jessen Co., factory engineers. Several textile-mill testimonials are included.

39. Dimensional data on welding fittings from ¾ to 12 in. and lightweight American standard flanges from ¾ to 30 in. in monel, inconel, nickel, copper, and other metals are contained in a bulletin prepared by Taylor Forge & Pipe Works.

40. The roving tester made by H & B American Machine Co. is described in a recent folder. Specimen test charts are shown.

41. Electric lift trucks, hand lift trucks, hand and electric hoists, and dial scales are shown and described briefly in a folder issued by Yale & Towne Mfg. Co., Philadelphia Div.

42. Uses of infrared lamps in drying, curing, dehydrating, preheating, expanding are described and shown in brochure No. 8 of North American Electric Lamp Co.

43. Stabilization of starch size to allow dispersions to be stored overnight or over weekends without losing their original viscosity or adhesive properties through use of Vanesta is described in a folder offered by R. T. Vanderbilt Co.

44. The Beckman recording photoelectric quartz spectrophotometer, a compact unit for recording percent transmission of monochromatic light through liquids or gases in the range from 220 to 360 millimicrons, is described in a folder and price list available from National Technical Laboratories.

45. Cast wheels of aluminum alloy in diameters from 4 to 12 in., with plain, ball, or roller bearings are listed in a catalog sheet of the Airlite Div. of Aerol Co.

46. The Dualfeed, a heavy-duty feed-off-the-arm felling machine for overalls, work pants, etc., is described and illustrated in bulletin 802 of Willcox & Gibbs Sewing Machine Co.

47. Permanent magnets, their characteristics, design, properties, and applications are described in a booklet issued by General Electric Co.

48. Treatment of process liquids by ion-exchangers for purification, recovery of constituents, and other purposes is discussed in bulletin 12 of Liquid Conditioning Corp.

49. Training of watchmen in fire prevention and fighting is discussed in a recent issue of *Factory Mutual Record.*

50. "Is Your Company Prepared for Rough Weather?" is the subject of a reprint from the Harvard Business Review available from the management consulting firm of Booz, Allen & Hamilton.

51. Pallets of aluminum said to reduce shipping and handling costs are listed and shown in a catalog sheet issued by Reynolds Metals Co.

52. Aggregate—a most important element of good concrete is discussed in an educational treatise, bulletin 701, offered by Walter Maguire Co.

53. Winder work loads is one of the important subjects discussed in a recent issue of *Twists & Winds,* publication of Universal Winding Co.

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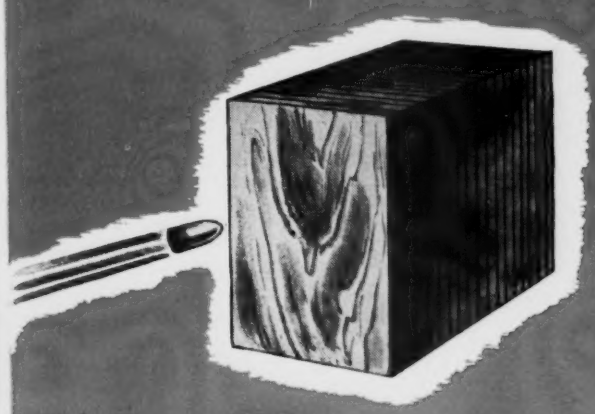

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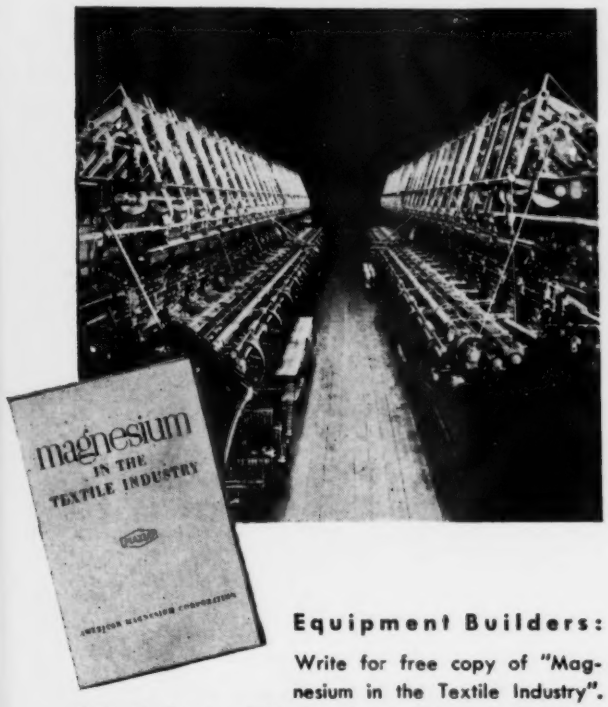

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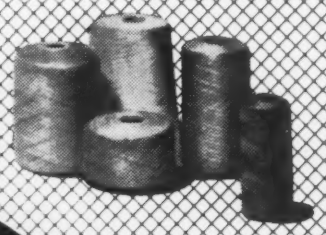

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(Continued from page 174)

finishing plants that have divisional superintendents of bleaching, dyeing, finishing, etc., salaries may range as high as $10,000 to $12,000 a year. Of course, men in these positions have many more responsibilities and supervise more employees than you indicate in your letter.

Curling and Bowing Are Easily Prevented

Technical Editor:

The article on a knit-cloth dyehouse [Knit-Cloth Dyehouse Thrives on Diversity] in the March, 1947, issue raised two questions with us. In the second paragraph, the author mentions giving circular knit goods of cotton content a non-curl treatment "to prevent the edges of the cloth from curling on the cutter's table."

What is this non-curl solution composed of?

Also what equipment should be used to keep the stripes in jersey cloth straight?

We have attempted to solve the problem of curling by using starch; and to combat bowing of the jersey stripe, we have placed two wheels in the sides of our spreader and covered the wheels with rubber. However, the wheels interfere with the cloth exit, and we should like to remove them. (9227)

A good non-curl solution can be made with a converted gum, dextrin, or starch. The fluidity should be 100.

There are several machines available that will keep jersey stripe cloth straight. At least one of these machines usually handles the cloth directly from the dye tub, kier, or washer and in a single operation spreads the wet fabric to its full width, extracts it, and applies the finish. This machine extracts by roller pressure, thus eliminating centrifugal extracting.

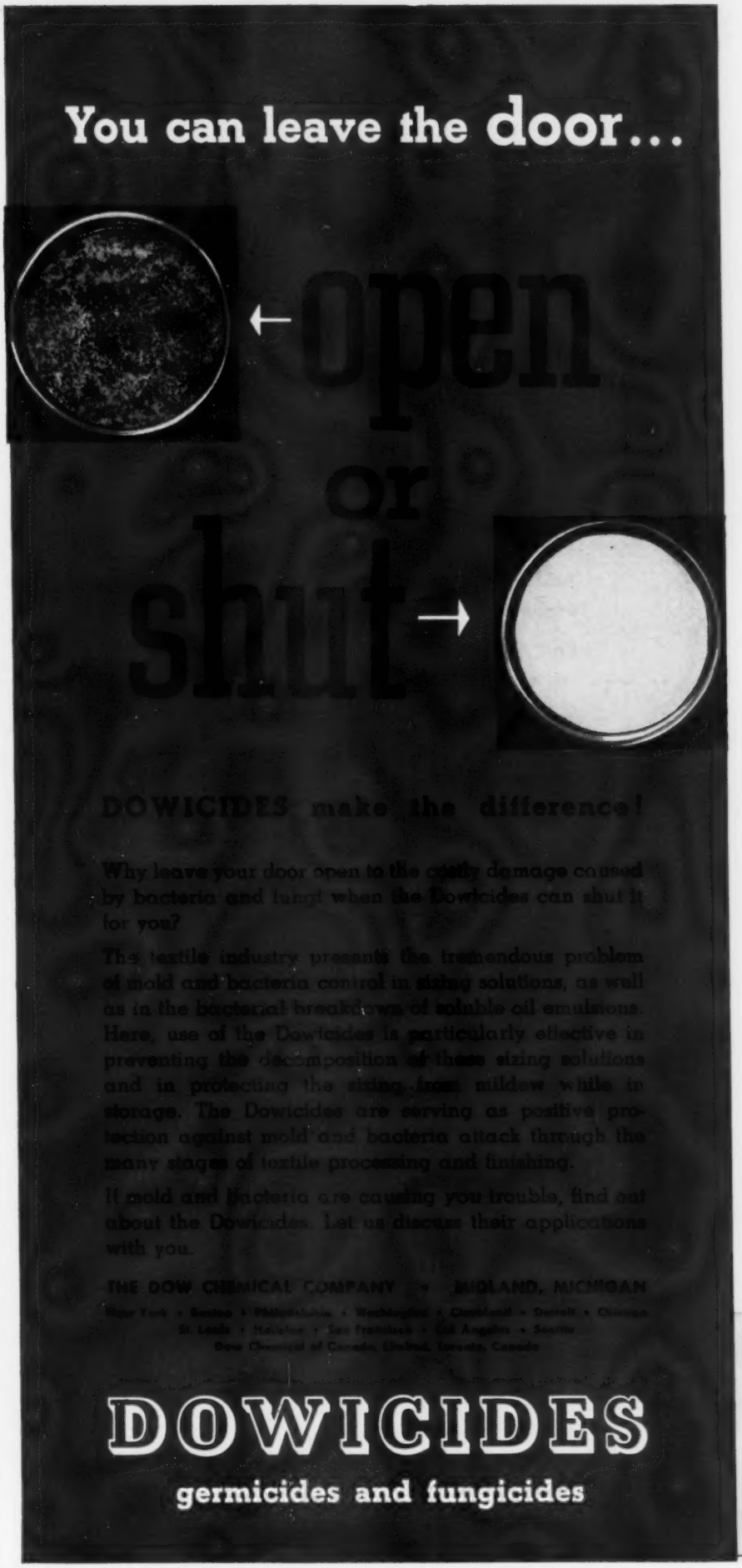
Size Formula Given For Worsted Yarn

Technical Editor:

Can you give me a size formula for use on 20s (metric count) worsted yarn in sets of about 2,000 ends? (9213)

Mix approximately 60 lb. of a good-viscosity potato starch with 60 gal. of cold water. Cook this slurry with live steam and bring to the boil in 25 min. Continue the boil for 20 min. Shut off the steam and hold the starch at a temperature of 170° F. Use a temperature of not less than 160° F. in the size box and do not hold the cooked size in storage for more than 2 hr. Also, avoid all unnecessary agitation of the cooked size.

This size, if made from a good potato starch, will produce a strong, ten-


You can leave the door...
open
or
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DOWICIDES make the difference!
Why leave your door open to the costly damage caused by bacteria and fungi when the Dowicides can shut it for you?
The textile industry presents the tremendous problem of mold and bacteria control in sizing solutions, as well as in the bacterial breakdown of soluble oil emulsions. Here, use of the Dowicides is particularly effective in preventing the decomposition of these sizing solutions and in protecting the sizing from mildew while in storage. The Dowicides are serving as positive protection against mold and bacteria attack through the many stages of textile processing and finishing.
If mold and bacteria are causing you trouble, find out about the Dowicides. Let us discuss their applications with you.
THE DOW CHEMICAL COMPANY MIDLAND, MICHIGAN
DOWICIDES
germicides and fungicides

CHEMICAL COMMENTS

PAINT IMPROVER

Methocel (Dow Methylcellulose) is proving useful in many ways in the paint industry and especially to manufacturers of water-base paints. It keeps pigments from flooding, settling or caking, provides thickening and binding action, and also serves as a pigment disperser. Its protective colloid action insures emulsion stability. In addition, its controlled viscosity prevents undue penetration and assures excellent brushing characteristics.

A HOUSEHOLD WORD IN INDUSTRY

Epsom Salt is one of those many-sided chemicals with an important place in a host of diversified industries. It is not only a fine medicinal chemical, but also a rugged standby for many factory jobs. To leather producers, it is a requisite in several stages of the tanning process . . . to textile men, it is important in rayon manufacture and as an aid in dyeing textiles . . . to the paper industry, it is an essential ingredient in sizings. And it takes still other important roles in the ceramic and fertilizer industries.

SOLVING SOLVENT PROBLEMS

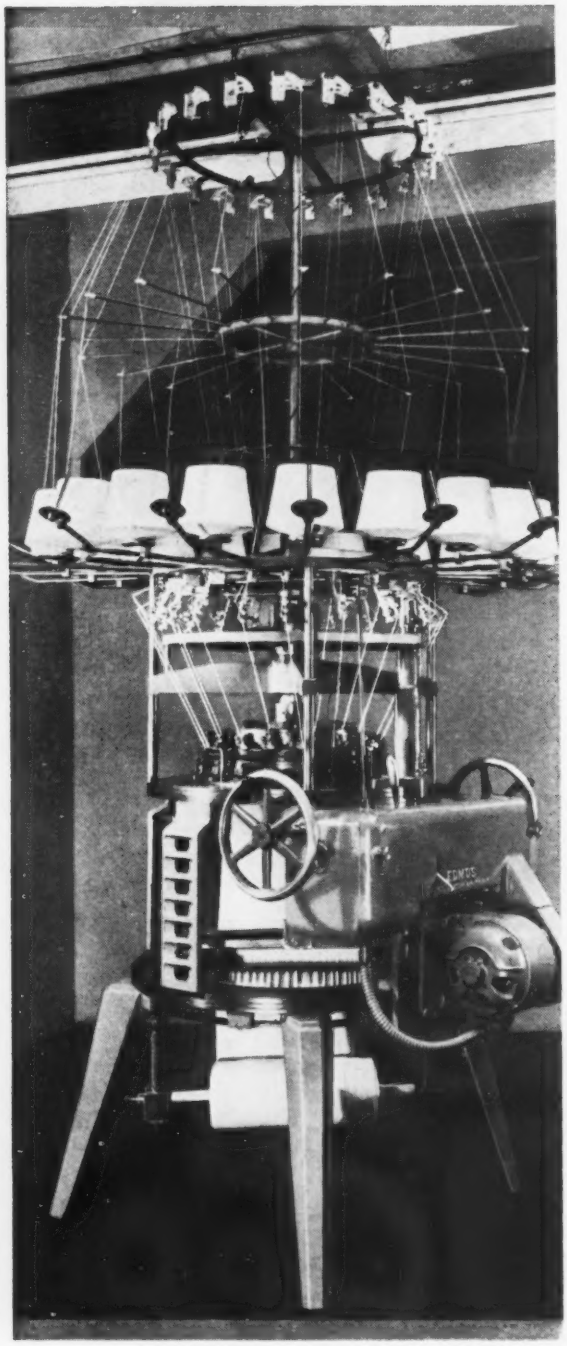
Conceded to be one of the best tar solvents known, Dow's o-Dichlorobenzene is coming into prominence as a highly useful cleaning agent for textiles. It is now being used for removing troublesome tar and tar-like substances from wool, and is particularly successful when used in combination with detergent mixtures. In addition to its tar-removing qualities, o-Dichlorobenzene is an effective solvent for waxes, and is an excellent paint remover.

Additional information about any of these products is available on request.

DOW

CHEMICALS INDISPENSABLE
TO INDUSTRY AND AGRICULTURE

TYPE AM MULTIFEED RIB MACHINES



Features . .

- **Gear driven dial**
- **Oversized dial shaft**
- **All ball bearing enclosed drive**
- **Multidisc clutch**
- **Free wheeling for easy hand turning**
- **Adjustable motor mount**
- **Belt driven take off with infinite speed changes**
- **Clutch actuated roll up for even tension**
- **Simplified caming system both on cylinder and dial**
- **One feed per diameter inch.**
- **Sizes in production from 9" to 25" inclusive**
- **All gauges from 8 to 16 cut**
- **Early deliveries on all machines**

THE LAST WORD in design, construction and mechanical refinements. Edmos multifeed machines are made in one of the best equipped plants in the country, with every operation from heat treating to final inspection under direct control of men with years of experience in building knitting machinery.

Type AM Multifeed Rib Machines will definitely give you greater production at lower costs than any other similar machine now built. Seeing is believing — call at our plant for a demonstration at any time. No obligation.

EDMOS PRODUCTS CORPORATION

13 Christopher Ave. Brooklyn, 12, N. Y.

acious film of size on the warp ends that will withstand considerable mechanical action in the loom without serious deterioration.

Chemical Disposal of Waste Is Still Experimental

Technical Editor:

We have been trying for some time to work out a satisfactory chemical treatment to neutralize our waste size before disposing of it. In each gallon of our waste-size solution, there are 0.345 lb. of solids. The composition of the solids is:

Acetylated corn starch	14 (%)
Gelatin	25
Emulsified hydrogenated vegetable oil (wax)	61
Total	100%.

The vegetable oil contains approximately 10% rosin.

We dump daily about 275 gal. of this size. We therefore dump each day:

Starch	13 (lb.)
Gelatin	24
Wax	58
Total	95 lb.

Can you recommend a procedure for treating this size solution in preparation for disposal through the sewer? (9229)

The problem of waste-size disposal is receiving widespread attention by textile chemists and at present there seems to have been no completely satisfactory method worked out. Several lines of experimenting are being followed, and perhaps at an early date more effective treatments will be available.

One approach now receiving attention is an effort to digest the carbohydrates and proteins in the waste size with enzymes precipitating the fats and resins.

Another possibility, though highly technical and still experimental, seems to be anaerobic digestion. Pure cultures of methane-producing bacteria have recently been isolated. Since these bacteria are able to produce methane, it may be possible to develop material to "inoculate" chemical waste to digest the solids.

Double Needle Loom Makes Fine Ribbon

Technical Editor:

In the inclosed sample of ribbon, you will note that the filling stops short of the selvage on either side. We are manufacturers of ribbons, but we are unable to duplicate this ribbon on any of our looms. Can you advise us as to what kind of machine was used in manufacturing this product? (9228)

The fine grosgrain ribbon, of which

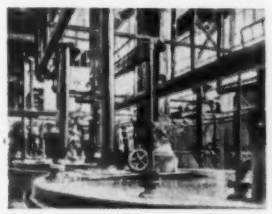
Go Lead for Acid Piping

When installing acid pipe lines for long, trouble-free service, go for a material that stays on the job. *Go National for Lead!*

Lead has proved itself the accepted corrosion-resisting material for acid conveying. National Lead gives you all of lead's advantages, engineered into acid pipe and fittings that withstand elevated or fluctuating temperatures, pressure, vacuum and vibration.

Here are three types ready to help you fight acid corrosion and mechanical stress:

1 All-Lead Pipe: National's Chemical Lead Pipe is widely used throughout industry. Of practically pure lead, substantially free of bismuth, it contains a small amount of copper, which boosts corrosion resistance and endurance limit. The extrusion process used in fabricating this pipe assures uniform wall thickness, free flow, and freedom from porous or defective spots.



***All industry** knows the dependability of lead for acid handling. Here are Chemical Lead Pipe and Fittings used with a battery of digestors.*

This is our *regular* lead pipe. It has become "standard" in many industries. Other useful types are made by alloying small amounts of other metals with chemical lead.

For example, our Tellurium Lead Pipe gives you *extra* corrosion resistance at high temperatures . . . *greater* tensile strength and toughness . . . *higher* endurance to vibratory stress.

Or, if you need *extra* resistance to erosion, there's also our Antimonial Lead Pipe. This is made with a base of either Chemical or Tellurium Lead. By adding 6% of antimony, tensile strength is almost doubled and hardness and stiffness are greatly increased.

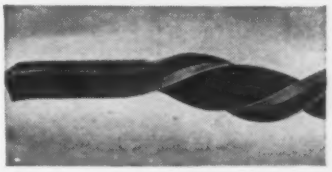
2 Cold Expanded Lead-Lined Pipe: Here's lead pipe plus the strength of iron or steel. It's our "United" Lead-lined Cast Iron or Steel Pipe. *Outside* you have all the strength needed to stand pressure or other mechanical stress; *inside*, the ability to resist corrosion.

***Lead's corrosion resistance** plus the strength of steel! "United" Lead-lined Pipe brings you both.*

The lead lining is formed in continuous lengths of seamless pipe, then cold-expanded against the inside of the iron or steel tube. You get a tight fit and a smooth, uniform lining, free of defects. All iron and steel pipe used meets ASTM standards.

3 "United Tubond" Lead-Lined Pipe: For handling corrosive liquids or gases at extremes of temperature, pressure, vacuum or vibration, we recommend our "United Tubond" Lead-lined Pipe. This is steel or wrought iron pipe with its lead lining permanently *bonded* to the ferrous metal. No separation or creep is possible. The toughness of the bond is demonstrated by the illustration below.

All our lead-lined pipe is available in flanged sections, with the lead lining carried over the face of the recessed flange. This insures a positive lead-to-lead seal at each flange, eliminating any leakage at joints.



***Bonded for keeps!** Once bonded . . . "Tubond" Lead-lined Pipe stays bonded. Even severe twisting can't break the bond.*

Go National for Lead

. . . pipe . . . valves . . . sheet . . . lead-lined or lead-covered equipment . . . even complete acid recovery plants. Behind every National Lead recommendation, every National Lead product, are years of experience and many important installations in every field handling corrosive liquids and gases.

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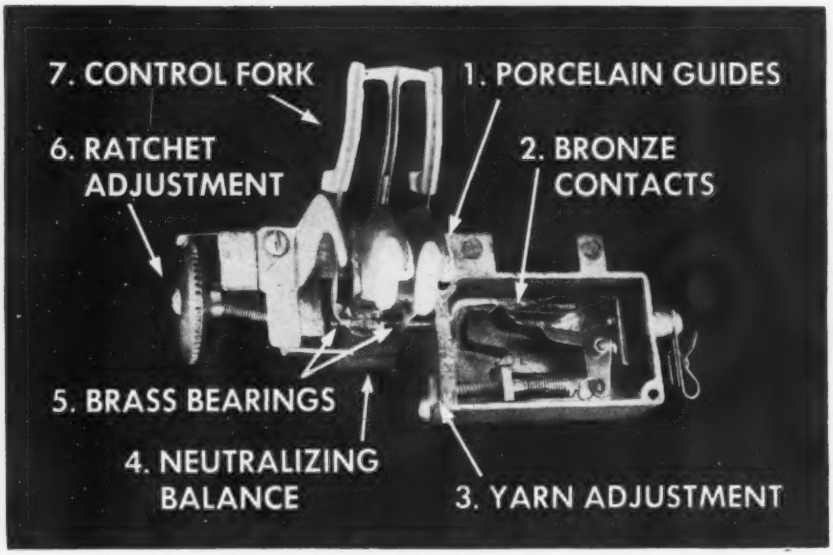
111 BROADWAY, NEW YORK 6, N. Y.
Offices and Plants in Principal Cities and Canada

SPECIFY...

AS HUNDREDS HAVE...



Crawford Spider Box the Controlling Unit of the Crawford Stopmotion.

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ELECTRIC STOPMOTION

Features

1. Porcelain Guides, smooth, frictionless, long wearing.
2. Bronze Contacts, non-arcing, long lasting.
3. Yarn Adjustment for each specific weight of yarn.
4. Neutralizing Balance gives sure, even action and yarn control.
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6. Ratchet Adjustment assures automatic action and protection for all yarn strengths.
7. Control Forks automatically protect your machine from damage due to uneven, faulty or broken yarn.

FOR MORE PRODUCTION, GREATER UNIFORMITY

In the last 50 years hundreds of knitting mills have installed Crawford's Electric Stopmotion, *proved to bring out the best in their machines!*

Crawford Electric Stopmotions have kept abreast of the development in design and performance of knitting machines, and in each instance are designed, engineered and refined for the specific machine you buy.

Write today for full details

Designed, Engineered and Manufactured by

The CRAWFORD MFG. CO., INC.

NEW BRUNSWICK, N. J. Tel.: 2-0603

you sent a sample, is probably too fine for most of the narrow-fabric looms made in this country. An analysis of the ribbon fabric indicates that it was made on what is termed a double needle loom. On this type of loom the filling is carried through the warp shed by needles rather than by shuttles.

Wound-Yarn Covers Work Satisfactorily

Technical Editor:

We have been using woolen blankets on our slasher squeeze rolls and are considering changing over to wound-yarn covers. What type of yarn, what yarn number, and how many rounds of yarn would be best for slashing cotton warps of medium yarn counts? (9223)

Cotton and jute yarns can be used satisfactorily for covering slasher squeeze rolls. You will probably find that about seven rounds of yarn—three of jute and four of cotton—will be sufficient. As you probably know, the amount of size left on the yarn can be increased or decreased by increasing or decreasing the number of rounds of cotton yarn. For example, if you wish to size more heavily, use only three windings of cotton—six windings in all. If you wish to size lighter, increase the rounds of cotton yarn to five or six—eight or nine rounds in all.

The bottom windings should be made with about six ends of 10s jute yarn, wound dry. Place three rounds of this yarn on the bare squeeze roll. Now wet three ends of 8s cotton yarn and wind them on wet for two rounds. Wet two ends of 8s cotton yarn in boiling water and wind on two rounds.

Mills that use this type of slasher cover report that they have a minimum of roll marks and chafing, as compared with results obtained from the use of woolen blankets. Although putting on a wound-yarn cover is more tedious and time-consuming than putting on a blanket cover, it usually lasts longer.

One thing to watch, however, is the amount of size being left on the yarn. The weights of your squeeze rolls may be different from those of mills using the windings specified here, or the condition of your journals and bearings may have an effect. Assuming that such a winding is satisfactory, you will find that more size is left on the yarn as the wound-yarn cover is used. This difference, of course, is due primarily to a decrease in pressure between the rolls as a result of the yarn cover wearing away and to the yarn in the cover becoming saturated with size.

ORONITE CHEMICAL COMPANY

REG. U. S. PAT. OFF.

THE NAME TO WATCH IN CHEMICALS

D-40 DETERGENT WORKS FASTER AND CUTS COSTS

Here is a detergent that offers new economies in washing and cleaning operations. D-40 is easily blended with other materials. As a cleaner by itself its effectiveness is unsurpassed.

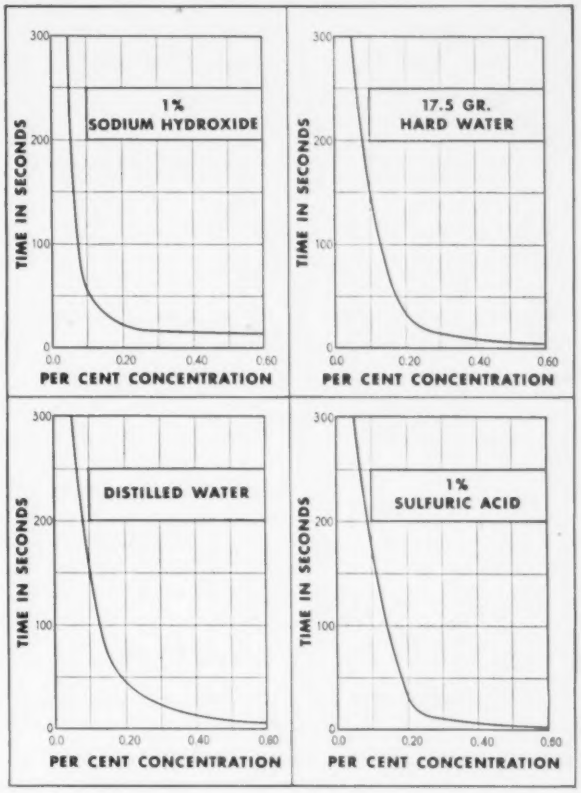
Greater foam heights...stability...greater detergency...shorter wetting times and quick solubility in hard or soft water are a few of its advantages.

There is an ever increasing number of industrial applications for D-40 Detergent either by itself or for compounding. Possibly your costs too, can be lowered through the use of this product.

For more detailed information contact one of the offices listed below.

TESTS SHOW RAPID WETTING OF D-40

The charts below show the results of wetting time tests of D-40 using the Draves-Clarkson method. Standard cotton skeins were used in distilled water, 1% sodium hydroxide, 1% sulfuric acid and 17.5 gr. hard water, all at 25° C.



From these tests it is apparent that short wetting and sinking times are outstanding properties of D-40 Detergent. This high level of surface activity in low concentrations proves D-40 saves time, cuts costs. It will pay you to get the facts about this remarkable product.

ORONITE CHEMICAL COMPANY

200 BUSH STREET, SAN FRANCISCO 4, CALIFORNIA
STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA
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These are the BEST

— without a doubt — the finest line of flood-lighting units ever to bear the famous SILV-A-KING label. And for a company which has enjoyed the reputation that has been SILV-A-KING'S for over a quarter-century — that's a lot.

ISLAND LIGHT

Life-time porcelain enamel Reflector. Cast aluminum support and top housing. Lamp mounted base up. All wiring encased.

SPORT AREA

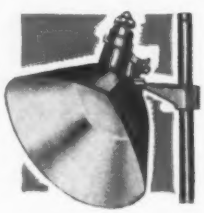
Alzak aluminum floodlight. Calibrated for vertical and horizontal adjustments.

SUPER SERVICE

Life-time porcelain enamel floodlight. Calibrated for vertical and horizontal adjustments. Enclosed wiring bracket illustrated.

UNI-FLOOD

Life-time porcelain enamel floodlight. Swivel joints for complete adjustments. Open wiring bracket illustrated.



UTILITY

Floodlight of seamless, one-piece heavy-gauge aluminum. Swivel joints allow complete adjustment.

NEW CATALOG

For the complete line of SILV-A-KING Flood-lighting Units, and all other Incandescent Reflectors, send for free Catalog #50.

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SILV-A-KING LIGHTING EQUIPMENT

Flammability

(*Continued from page 110*)

States during the 2-yr. period were covered in this study. It is believed, however, that the survey gives a valid indication that the number of fabrics which can be considered unusually combustible is small. Rayon and cotton fabrics carrying an especially long or fine nap seem to constitute the major part of the highly combustible group. Light nets and diaphanous fabrics, often used for evening gowns, are also hazardous. Certain lightweight coated fabrics, some designed primarily for such purposes as shower curtains, have also resulted in serious accidents when used for clothing.

TESTING. The procedures developed at the National Bureau of Standards to evaluate the combustibility of fabrics include two methods, a vertical and a horizontal test. Another type—the inclined test, developed by a committee of the American Association of Textile Chemists & Colorists—was also utilized in this analysis.

Vertical Test. Many people consider the vertical position preferable for testing clothing materials, as it more closely simulates conditions of actual wear; but most untreated rayon and cotton fabrics burn so rapidly in a vertical position that, unless the samples are long and unwieldy, burning is too fast to permit accurate observation of the rate except from records made with a motion picture camera or similar means. It is also difficult to distinguish between the travel of the flame front on the fabric and the tip of the flame above it.

In tests made at the National Bureau of Standards, specimens 24 in. long and 2½ in. wide are supported vertically in a frame which clamps the long edges of the sample, leaving a strip 24 in. long and 2 in. wide exposed. A 1½-in. luminous, Bunsen flame, applied for 12 sec., is used to ignite the lower edge of the specimen. The time required for the char to reach the top of the specimen is noted visually or with a motion picture camera and measured with a stop watch.

Moving pictures permit more accurate reading of short-time intervals than do visual observations; however, the latter were found to check well with camera recordings. Automatic timing, activated by burning of the threads near the lower and upper ends of the specimen, was also applied. This method timed the advance of the tip of the flame; but, to measure automatically the advance of char, other devices are necessary.

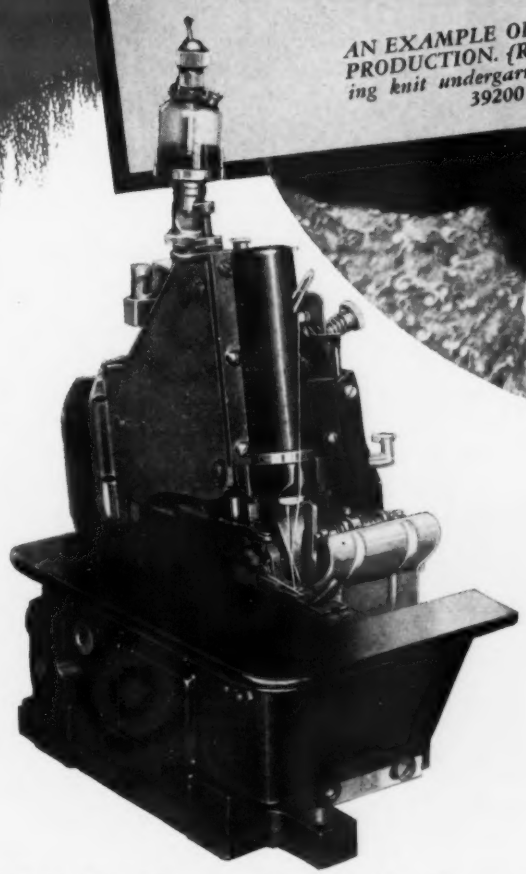
Horizontal Test. When the sample,

UNION SPECIAL

for high speed SEAMING!

TODAY, speed in seaming is more than just a tool for cutting costs. For many manufacturers, it is the only means available for pushing volume of output above the "break-even" point. Plants equipped with modern, high speed Union Specials have an important advantage. Union Special machines are built to do the job faster . . . better . . . cheaper, and THEY STAY ON THE JOB with minimum time out for repairs. *You're ahead when you use Union Specials!*

AN EXAMPLE OF HIGH SPEED PRODUCTION. (Right). Overseaming knit undergarments with Style 39200 AC.



THE THIRTY-NINE-TWO

● The THIRTY-NINE-TWO is produced in a number of different styles—each specially designed for a particular type of work. Style 39200 AC is widely used for seaming the lighter weights of flat knit, warp knit, and ribbed knit fabrics.

UNION SPECIAL MACHINE COMPANY
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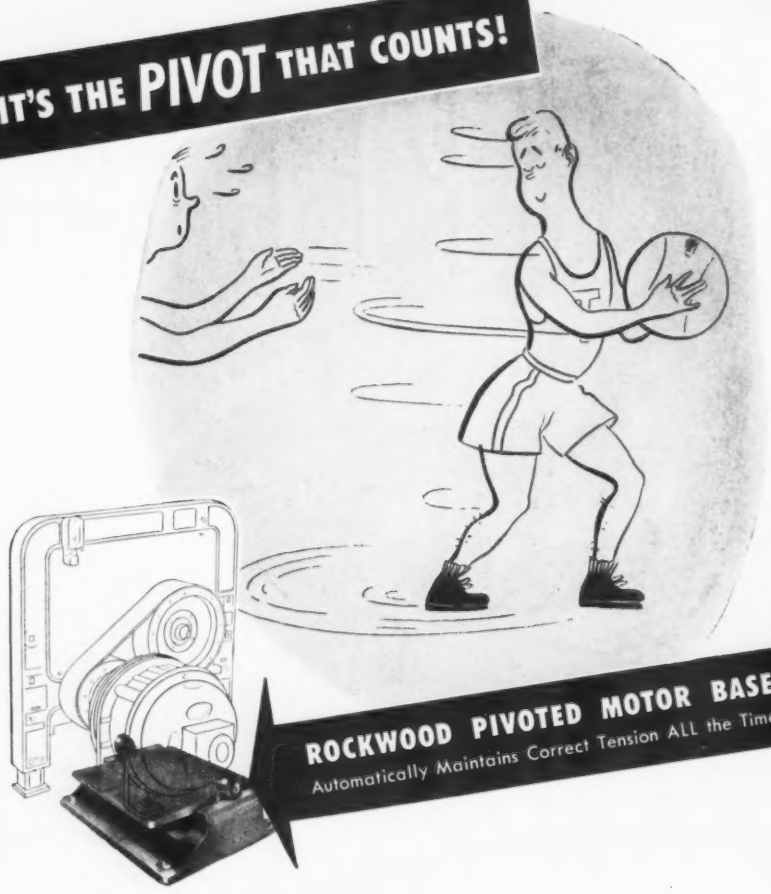
INDUSTRIAL SEWING MACHINES

IT'S THE PIVOT THAT COUNTS!



ROCKWOOD PIVOTED MOTOR BASE
Automatically Maintains Correct Tension ALL the Time

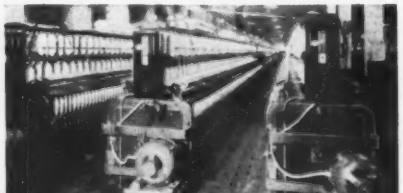
IMPROVES QUALITY!
BOOSTS PRODUCTION! SAVES LABOR!

● With Rockwood Pivoted Motor Drives, you can always be sure that your machines are running at the right speed . . . and that they'll continue running at the right speed . . . despite belt-stretch or changes in load. That means more production and better production . . . higher quality, and more uniform quality . . . *every day!*

● There's no labor or time out required for maintenance. Rockwood's pivoted design automatically maintains proper tension with practically no attention. Stress on belt and bearings is always minimum, doubling belt-life and eliminating costly shutdowns for motor overhaul. It's so efficient it saves 5 to 10% in power.

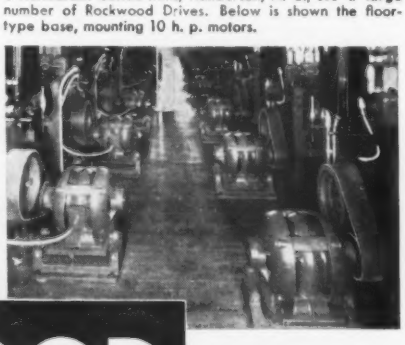
● Installation is quick and easy because Rockwood Drives are pre-adjusted at the factory to meet your exact conditions. Write for further details or call your Rockwood Distributor today!

ROCKWOOD MANUFACTURING COMPANY
Indianapolis, Indiana



● Rockwood Drives are available in a shelf-type, fastening to the frame-end, as shown in Cannon Mills installations at Kanapolis, N. C.

● Henderson Cotton Mills, Henderson, N. C., use a large number of Rockwood Drives. Below is shown the floor-type base, mounting 10 h. p. motors.



ROCKWOOD PIVOTED MOTOR DRIVE

AVAILABLE *with Flat or V-Belt Drive*

● Rockwood's expanded manufacturing facilities now assure delivery immediately or according to any schedule you determine.

which is ignited by a gas flame applied to one end, is tested in horizontal position, the burning is retarded, differences in rate become more pronounced, and the flame front is clearly defined, making accurate measurement easier. Hence, for test purposes, many prefer the horizontal position provided the results correlate in some degree with those obtained by the vertical test and provided the rate of burning serves to indicate which fabrics are most hazardous in actual use.

The simplicity of the horizontal test equipment in contrast to the complicated equipment necessary for the vertical test led to development by the National Bureau of Standards of the horizontal flame-spread apparatus. This apparatus is described in National Bureau of Standards Circular 455 on "Flameproofing of Textiles."[1]

Before testing, a specimen 4½ in. wide and 12½ in. long is cut from the cloth in the warp direction, or with the nap parallel to the long dimension in the case of pile fabrics, and is conditioned in an oven at 140° F. for 1 hr. It is then clamped in a steel frame to expose an area 2 in. wide by 12½ in. long.

A fine wire, 1½ in. from the end to be ignited, and another, 1 in. from the opposite end of the exposed area, define the 10-in. length on which the rate of burning is measured. These wires are attached to the frame so as to clear the upper surface of the fabric. The frame slides on horizontal supports into a ventilated cabinet having strip heaters to keep the temperature at approximately 140° F.

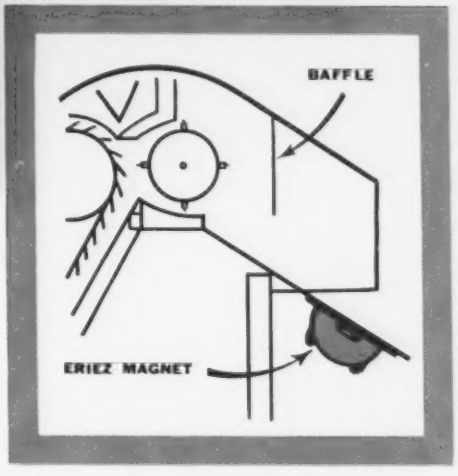
The front of the cabinet and spaces in the cover are glazed to permit observation. When the fabric is in test position, a 1½-in. luminous flame from a ⅜-in. Tirrill gas burner is used to ignite the sample, one end of which is centered on the flame ¾ in. above the top of the burner tube, and the flame is applied until the fabric is well ignited. A 1½-in. length burns before the flame front reaches the first marking wire when timing is started.

The time required to burn the 10 in. between the marking wires is measured with a stop watch, and the rate of burning or flashing (flame through the nap) is calculated. Substitution of automatic timing devices for visual observation was not justified by the small gain in precision.

Inclined Test. Inclining the sam-

[1] Copies obtainable from Superintendent of Documents, Washington 25, D. C., at 10¢ each. Specifications and detailed plans of the equipment can be obtained from the National Bureau of Standards, Washington 25, D. C.

How the Felters Company put Eriez Magnets to Work



This cross sectional drawing shows the position of the Eriez Magnet at the discharge end of the feeder. Note the optional baffle which can be used if the normal flow of material is not across the magnet face.

TYPICAL of Eriez leadership in magnetic protection is this installation at the Felters Company, Johnson City, New York, which reduces fire and machinery damage caused by tramp iron. Mounted on the discharge end of a feeder, this installation is ideal when the spiked apron on the feeder is made of metal. The compact Eriez Non-Electric Permanent Textile Magnet shown above was built to exact specifications in order to fit existing machinery. This flexibility in design, plus compact construction, permits Eriez Magnets to be installed in those locations where maximum magnetic protection is needed. Eriez Non-Electric Permanent Magnets are an economical investment because first cost is last cost. They require no current or other electrical accessories . . . operating and maintenance costs are virtually eliminated. Submit your tramp iron removal problems to Eriez. We will be glad to help in their solution.

Please send bulletin No. 104A and the following: TW-3

Data on Eriez Magnets for:

☐ Wool ☐ Cotton ☐ Worsted ☐ Other processing lines

Eriez data on: ☐ Gravity Conveyor ☐ Mechanical Conveyor

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Name.....

Address..... City..... State.....

For Complete Textile Magnetic Protection . . . See Eriez First

ERIEZ MANUFACTURING COMPANY

501 East 12th Street, Erie, Penna.

REDUCE LOOM SHUTDOWNS; WASTE OF CLOTH . . . caused by broken warp threads

More and more textile mills are effecting real economies by sandwiching warp thread ends between two strips of "SCOTCH" Flatback Masking Tape. It is the sure way to simplify warp thread tie-ins to the loom; reduces thread breakage from crossed strands.

ADVANTAGES OF THE "SCOTCH" TAPE METHOD OF HOLDING WARP THREADS

1. Speed of application—no moistening needed.
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ple at 45 degrees to the horizontal is a compromise between the vertical and horizontal positions. In this position, the burning is slowed to a more easily measurable rate than in the vertical position; but here the flame front is too poorly defined to be followed accurately by visual observation and mechanical means must be used to determine the end point of the test.

For this position, the sample is ignited by a small flame impinged on the surface of the fabric. The apparatus for making the tests in the inclined position was developed by the Committee on Flammability of Consumer Fabrics of the American Association of Textile Chemists & Colorists for the purpose of indicating unusually hazardous fabrics.[2]

For this test, a specimen 2 in. wide by 6 in. long is supported on a wire grid in the inclined position inside a ventilated cabinet. By means of an automic timing device, a small flame of butane gas is impinged for 1 sec. on the surface of the sample near the lower end.

A stop watch is started automatically when the flame strikes the fabric. When the flame has progressed far enough to burn through a thread stretched across the upper end of the sample, a suspended weight drops to activate a mechanism which automatically stops the watch. Thus, if the fabric ignites in 1 second, the time required for the flame to burn or flash over an approximate 5-in. length of the sample is automatically recorded. The samples are conditioned in an oven at 221° F. for 15 min. before testing.

TEST RESULTS. The number of specimens available was limited for some of the tests, particularly those in the vertical position, and the results may not be completely representative for the type of fabric. With this limitation in mind, data from the vertical, horizontal, and inclined tests were compared. The comparison is restricted however by differences inherent in the three methods of test.

In the vertical and inclined tests, timing is taken from the instant the flame is applied and includes the time of ignition and the effect of the igniting flame; whereas, in the horizontal test, timing is started after ignition has been effected and a portion of the sample burned. In the horizontal test, the advance of the base of the flame is measured; but, in the inclined test, the tip of the flame often reaches and burns the thread first. The data are not identical measurements of the

[2] Year Book of the American Association of Textile Chemists & Colorists, 1946, pp. 259-299.

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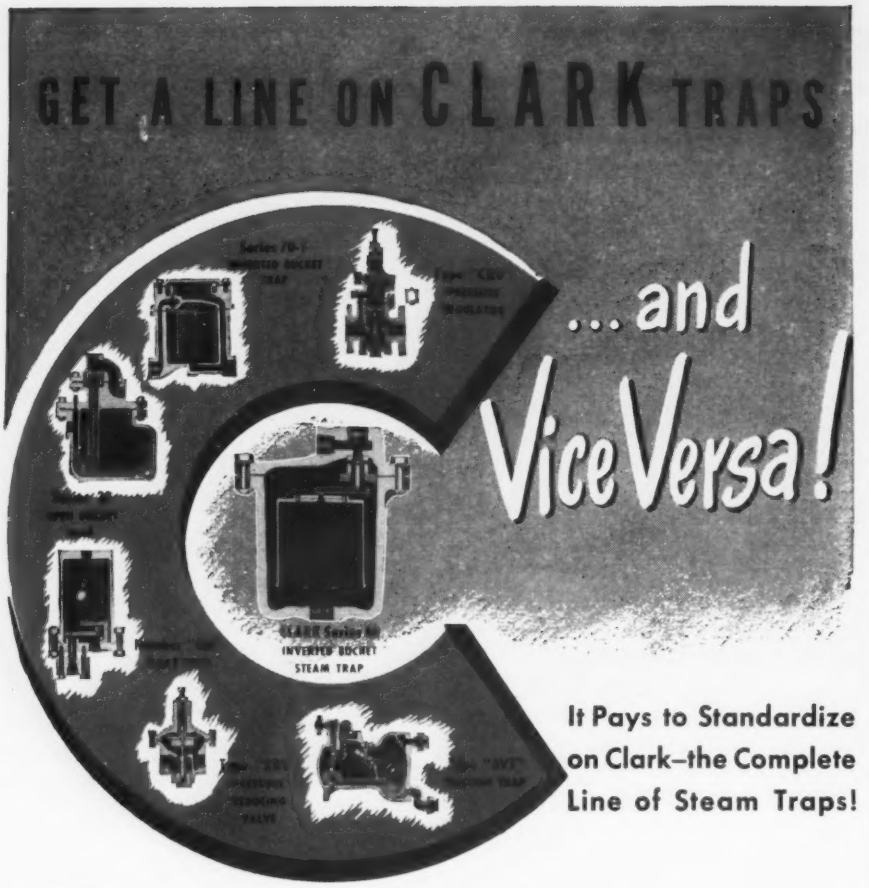

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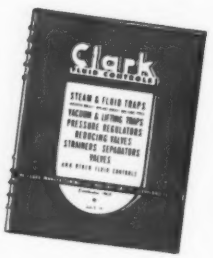

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same characteristic, in which only the position of the sample was varied, and therefore they do not admit of exact comparison. They do indicate, however, the classification of various fabrics in relation to each other by the different test methods, as well as those which would be considered as highly combustible under the performance limits allowed for the horizontal and inclined tests.

Two types of flashing were exhibited by napped fabrics in the vertical position. With most cotton flannels and flannelettes and some brushed rayons, a rapid self-extinguishing flash passed over the surface of the material. The flash was superficial without sufficient intensity to ignite the fabric it passed over, and almost immediately disappeared without serious damage to the fabric. Materials of this type are not usually light in weight and therefore burn at a moderate or slow rate.

Although flashes of this sort are frightening to the wearer, such materials apparently present no more actual hazard than many of the thin, lightweight fabrics commonly used in children's and women's summer dresses. Fabrics exhibiting this type of flashing in the vertical position did not flash in the horizontal test. In the inclined test, their behavior was somewhat erratic.

Some fabrics which showed the superficial flash in the vertical position neither flashed nor ignited in the inclined position. Others showed a similar rapid flash which burned the thread but often failed to ignite the fabric. In still other fabrics of this group, some specimens failed to flash or ignite in the inclined test while other specimens of the same fabric flashed at a rapid rate.

The second type of flash observed on napped fabrics was equally rapid but, instead of being transient and superficial, attacked the nap and fabric and continued to flame over the entire surface. Nearly all of the fabrics which exhibited this type of flash in the vertical position also showed flashing in both the inclined and horizontal tests.

GROUPING. Classification of fabrics by the different test methods will be effected to some extent by the definition of performance requirements in each test. On the basis of their experience with the tests, the respective groups responsible for development of the inclined and horizontal tests have suggested limits which have been incorporated in proposed Federal legislation on the subject. In this paper, further consideration of these two tests will be based on these limits.

A rate of burning or flashing greater than 10 in. in 10 sec., based on the

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MATERIAL HANDLING News

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1. **Clark manufactures its own major units**
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Among industrial executives who *know operating costs* of electric fork trucks—taking into consideration initial investment, maintenance cost and operating cost—Clark electric fork trucks are preferred by a generous margin.

These men's opinions may be summarized in the terse comment of one of them—"Clarks cost less!"

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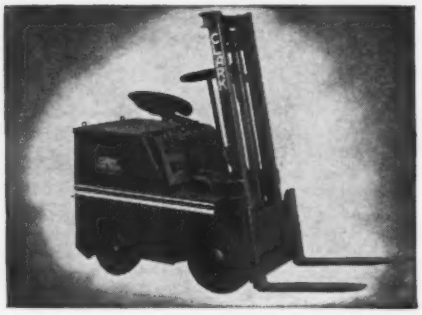
It is a fact scarcely in need of emphasis to production men that the volume manufacture of Clark machines achieves many important economies. Practically all the major units in Clark machines are produced in Clark's own plants, and on a mass scale—axles, transmissions, wheels, frames and smaller units. All these units must meet the exacting standards established for Clark Products. All possess that rugged excellence that has built the Clark reputation for fine engineering.

Economical assembly saves dollars for customers. Here electrical control gets final inspection.

2. ASSEMBLY-LINE ECONOMIES

A further benefit passed along to users of Clark machines derives from Clark's assembly-line production. Inasmuch as Clark builds both types of fork truck—electric battery-powered and gas-powered—Clark's output is by far the largest in the industry.

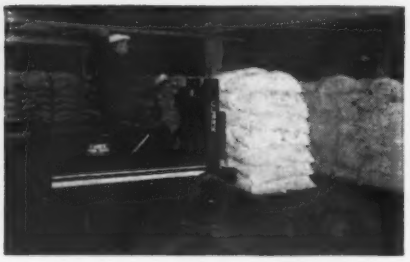


Here is electric battery power in fast, maneuverable form — instantly applicable to countless routine assignments.

3. INTERCHANGEABLE PARTS

A third potent advantage springs from the maximum interchangeability of parts perfected by Clark. Insofar as is possible, parts used in electric trucks are identical with similar parts of gas powered trucks—a source of important savings to Clark users.

The fact that "Clark builds both" is worthy of repetition, and you realize why. Clark's recommendations are unbiased. You get wholly objective counsel concerning your operations and the types of machines that will serve you most efficiently and economically. Here, indeed, is a good recommendation!—CONSULT CLARK.



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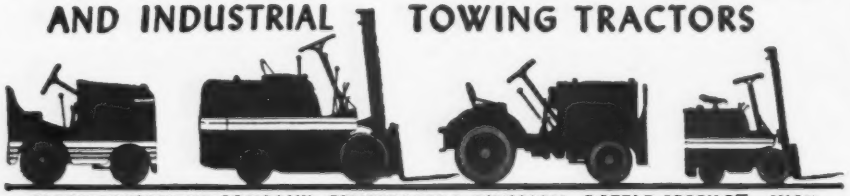

CLARK EQUIPMENT COMPANY, TRUCTRACTOR DIVISION, BATTLE CREEK 27, MICH.
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average of five specimens, has been suggested as the criterion for a highly combustible fabric in the horizontal test. In the inclined test, it has been proposed that a fabric be considered highly combustible if the time to burn the thread is less than 6 sec. based on the average of five or ten tests, or if one individual specimen burns the thread in less than 5 sec.

Based on these requirements, neither inclined nor horizontal test will classify as highly hazardous such materials as cotton sheeting or the common rayon and cotton fabrics in a flat weave. Of the five nets tested, the horizontal test would classify two acetate nets and one fine silk net as hazardous. The inclined test would so classify four of the nets, and possibly the fifth, had the conditioning temperature of 221° F. been used.

The tests agreed well on two coated fabrics, classing chintz as not highly combustible and lightweight coated rayon as hazardous.

Four fleeced cottons and cotton flannels were tested, none of which was shown to be extra hazardous by the horizontal test, whereas three would be so considered by use of the inclined test.

Comparisons of 15 rayon-napped fabrics were made. The two types of test are in agreement on nine of these fabrics classifying four of the nine as highly combustible. Of the remaining six, which would be classed as unusually hazardous by the inclined test, four showed a relatively slow burning rate in both the horizontal and vertical positions; one showed a self-extinguishing flash in the vertical position and burned slowly in the horizontal position, and the other burned rapidly in the vertical position but slowly in the horizontal test. The ten tufted fabrics which were tested would be classed as extra hazardous by the inclined test. Five of them would be so classed by the horizontal test, a sixth possibly so, and four would be rated as not unusually combustible.

Both the inclined and horizontal tests classify as uncommonly hazardous the long-napped fabrics from which serious acidents have resulted, such as those used in the chaps of cowboy suits and in some robes and sweaters. The same is true for thin coated fabrics.

With decrease in the length of nap, the number of brushed rayons, as well as the number of fleeced- and tufted-cotton fabrics, classed as highly combustible by the horizontal test, is relatively smaller than that so classed by the inclined test. The long-continued use of fleeced cottons without decided indication of high hazard in this country, and the failure of this study to disclose records of ac-

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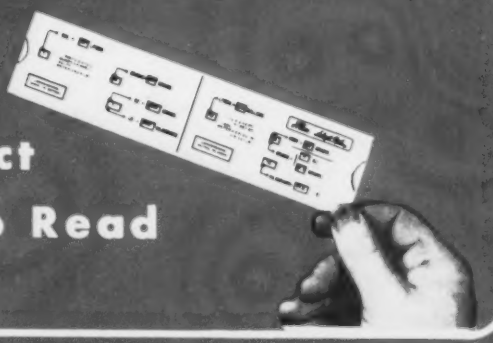

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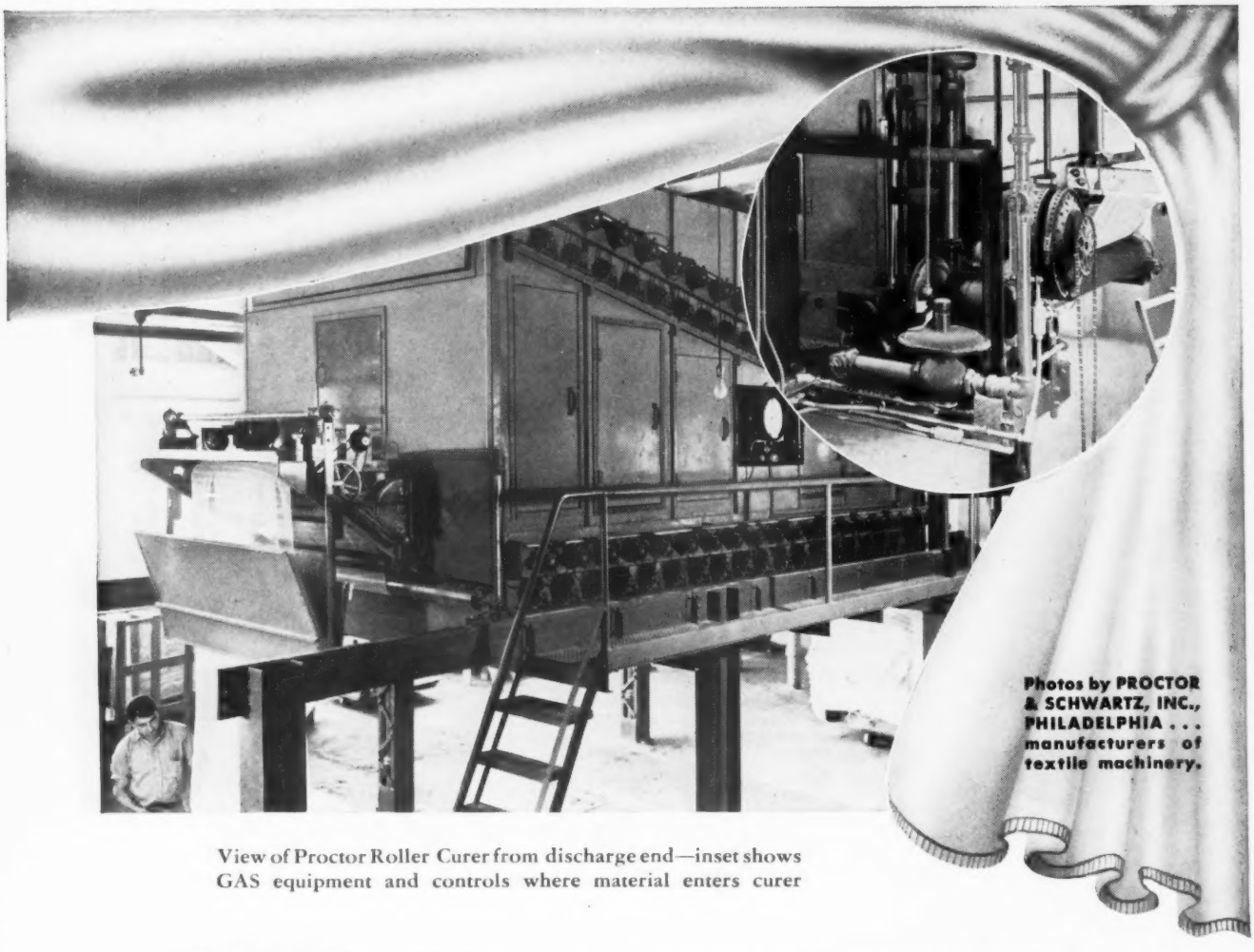

Photos by PROCTOR & SCHWARTZ, INC., PHILADELPHIA . . . manufacturers of textile machinery.

View of Proctor Roller Curer from discharge end—inset shows GAS equipment and controls where material enters curer

GAS FULFILLS TEXTILE INDUSTRY'S NEED FOR FLEXIBLE, *Controllable Fuel*

Textile equipment manufacturers such as the pioneering firm of Proctor and Schwartz, Inc., take advantage of every characteristic of the productive flames of GAS in the development of processing units such as the Proctor Roller Curer.

One New England textile finisher uses the Proctor Roller Curer for curing resin-treated fabrics of cotton and rayon. The heat processing is accurately controlled by adjusting the lineal speed of the fabric and the temperature of the curing zone—just the sort of temperature adjustment which can be made quickly and accurately with simple GAS control equipment.

Throughout the textile industry the flexibility and accurate controllability of GAS have made possible the high-speed heat-processing of all types of fabrics. In hundreds of mills the productive flames of GAS perform operations such as singeing, polymerizing, drying, slashing, curing.

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cidents resulting primarily from the use of fleeced cottons or the shorter-napped rayons where small ignition sources were involved, suggest that the inclined test may be unduly severe, since it classes a number of these materials as unusually hazardous. It appears that modification of the performance limits within a practicable range would not greatly alter the classification of most types of fabrics by either test. A greater number of fine nets would also be classed as hazardous by the inclined test, although the reports of accidents with these materials were too few and the available information too incomplete to permit a fair comparison of test results with consumer experience.

SUMMARY. Data compiled from a survey of accidents involving ignited clothing indicate that the number of fabrics on the market which can be considered unusually hazardous is small. However, serious and fatal accidents have resulted from the use of these materials in clothing. Rayon and cotton fabrics carrying an extra long or fine nap apparently constitute the major part of the unusually combustible group. Light nets and diaphanous materials, and certain coated fabrics have also appeared as a primary factor in some serious accidents. Two procedures, one using the horizontal position and one using the inclined position, have been developed for practical test purposes because burning in the vertical position is inconveniently rapid. The inclined and horizontal tests agree well in classifying rayon and cotton fabrics with extra long or fine nap as *hazardous*; and in classifying ordinary fabrics in flat weave, sheeting, cotton and rayon prints, and the like, as *not highly combustible*. Among brushed rayons with a shorter nap, fleeced- and tufted-cotton materials, and fine light nets, the inclined test classifies as *unusually combustible* a somewhat greater number of fabrics than does the horizontal test.

The horizontal and inclined tests are being used as the basis for proposed Federal legislation to regulate the shipment of highly combustible fabrics in interstate commerce. While legislation is one method of control, the increased recognition by both manufacturer and consumer of the fact that certain types of fabrics are easily ignited will assist materially in decreasing the hazard. In view of the relatively large number of burning accidents that occur with ordinary textiles which are not covered by the proposed legislation, it will still remain the user's responsibility to keep fire away from clothing.

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For extracting rugs, blankets, felt goods and other large loads in less time, select either the 72" or 96" "Center-Slung" extractor. These giant extractors, with enormous capacities, handle your jobs easily, safely and speedily. Tolhurst's 72" "Center-Slung" Extractor has a total capacity of 46.8 cubic feet, while the 96" model, as shown here, has a capacity of 111 cubic feet. Safety covers are standard equipment on both machines. Automatic timer available at extra cost on either size machine. Write for 20-page illustrated catalog and prices on these "Center-Slung" models and other Tolhurst textile extractors.

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Human Engineering

(*Continued from page 137*)

vances of economics and engineering. The conflict is dangerous and wasteful, but it need not last, he said. It can be reduced by remedial measures and cured when these are backed by an understanding philosophy of industry's relationships with people.

Wartime production of the industry rose 30% while work force fell 3%, Mr. Dixson continued. The industry is now prosperous, but employee relations are poor. In 1947, labor turnover was about 62%. In one representative progressive mill, 284 out of 890 employees were unhappy in their work. Of these, 91 quit to take new or better jobs; 88 found the work undesirable or were dissatisfied; and 105 left for unknown reasons. Total turnover was 633. In general, rates of absenteeism varied from 5 to 7% in the industry.

Last August, textile weekly wages averaged $37.50 while manufacturing as a whole paid $49.21. Substantial textile-wage rises since that date cannot immediately erase the difficulties which have grown out of former wage levels. Because wages are low, Mr. Dixson said, the industry has trouble in securing labor. Its employment policies are antiquated and working conditions often very poor. Most mills are neither clean nor attractive. Too many jobs appeal only to the less skilled and less ambitious workers, with few opportunities for advancement. Many supervisors are still old-fashioned bosses, unskilled and even uninformed in modern personnel techniques. With some exceptions, management has not tried to cooperate with labor, to keep its methods up to date, or eliminate economic abuses which weaken the industry and reduce its profits. Price recessions in the prewar era offer some defense for these conditions.

PLAN OFFERED. Mr. Dixson offered the following steps toward better relations:

1. Analyze the situation to learn on the ground what is wrong.

2. Reduce the undesirable effects of machines. Cut down noise, inconvenience, inefficiency, and danger of injury. Develop multiple-movement operations. Show the worker graphically what he is doing and his contribution to the end product.

3. Achieve an effective and equitable wage structure, with lower unit-labor costs.

4. Let engineers and management join hands to educate workers on the desirability of new methods, equipment, and production goals. Inform

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Du Pont vat color pastes for printing cottons and rayons—PONSOL* and LEUCOSOL* colors (anthraquinone-type dyes)... SULFANTHRENE* colors (thioindigoid-type dyes).

The physical properties of these products are especially controlled to yield a full range of shades in printing. They offer the best all-round fastness obtainable . . . help assure customer satisfaction. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Div., Wilmington 98, Del.

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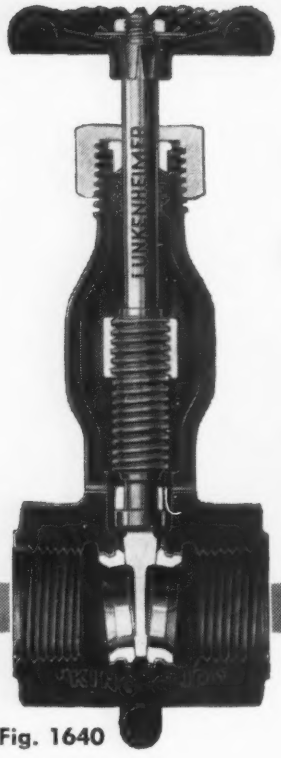

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Fig. 1640

The Lunkenheimer "King-Clip" Valve has one quality feature after another... from the coarse, heavy stuffing box threads and hex-head gland which minimize stuffing box troubles... to the heavy body which resists wrenching and piping strains... and the heavy rust-proofing treatment, inside and out. Each feature adds longer life, lower maintenance and better service, wherever small and medium sized gate valves are used.

Note the ample, unobstructed drain channels and bronze thread bushing features originated by Lunkenheimer, as was the "King-Clip" Valve itself. The Lunkenheimer "King-Clip" Valve is truly the king of all clip type valves... widely used for more than 50 years and, today, better than ever for longer, low-cost service.

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Shown are Lunkenheimer "King-Clip" Gate Valves after seven years of continuous service at a large pulp and paper plant in the South. These valves handle the liquid discharge from a vertical tube evaporator . . . a liquid called "heavy liquor" and termed "very corrosive" by this company. The valves have given "very satisfactory service in this application."

ASK YOUR DISTRIBUTOR

Consult your valve specialist, the friendly near-by Lunkenheimer Distributor. He has a stock of "King-Clip" Valves as well as other fine Lunkenheimer products. Ask for Bulletin 561 which details the 21 standard types of "King-Clip" Valves.

and reassure employees directly and through union leaders and department heads. Try to give employees a chance to agree on the need for a change. Take advantage of the time factor in planning for displaced workers.

5. Improve relationships between line foremen and workers. Train and accept the supervisor as the operating element in management.

6. Establish a personnel department, adequately staffed with authority to deal with the human problems of employment. Inform employees about basic policies. These can be changed according to conditions. Aid in interpreting agreements to rank and file, supervisors, and management.

All these steps add up to an effort to provide an attractive working environment, Mr. Dixson concluded. To these must be added job security. This means stabilized operations, planning for continuous high-level employment, likeable jobs, rewards for good service, merit rating, promotion, fair treatment under layoffs, an adequate seniority policy, suitable pension and annuity plans, and participation in the part of the business which directly affects each employee's work and destiny.

Albert Palmer, vice president of Crompton & Knowles Loom Works, Worcester, Mass., made a vigorous plea for training employees in textile plants in the proper use of improved machinery. Similarity of equipment and work do not alone insure success with new machinery, he stated. Management is responsible for inadequate preparation for such use.

FACTORY VISITS. Preparation hinges upon someone in the organization having a thorough knowledge of the new machinery and the conviction that it will do the work if it is properly handled. He must also be able to sell the idea to his associates, many of whom probably will be opposed to the changes that will affect them. Mr. Palmer approved the plan of taking customers' key men into textile-machinery plants to learn how to operate the equipment during factory assembly and test periods. Foreign buyers appreciate this policy more fully than domestic purchasers. Men that are sent, added Mr. Palmer, take the job more seriously and generally return to their companies with notebooks filled and themselves full of enthusiasm and the belief that they can make the job go at home. Basically, success requires a common understanding of the problem of the company and of the benefits due to the capital investment in modernization.

Such a mill-management problem

CHEMICAL USERS' GUIDE To General Chemical Products for the Textile Industry

PRODUCT	AVAILABLE FORMS	COMMERCIAL STRENGTH (MIN.)	SHIPPING CONTAINERS	APPLICATIONS
Glauber's Salt, Crystal $Na_2SO_4 \cdot 10H_2O$ *(Sodium Sulfate)*	Colorless Crystals	96% $Na_2SO_4 \cdot 10H_2O$ 42.3% Na_2SO_4	Bags	Dyeing assistant.
Glauber's Salt, Anhydrous Na_2SO_4 *(Sodium Sulfate)*	White Granules	99.5% Na_2SO_4	Bags	Same as crystal but stronger product.
Sulfuric Acid H_2SO_4	Liquid	66° Be 93.19% H_2SO_4	Carboys Steel Drums Tank Trucks Tank Cars	Carbonizing wool; dyeing; desizing cotton; souring; rayon spinning bath.
Acetic Acid CH_3COOH + water	Colorless Liquid	Various	Carboys Barrels Tank Cars	Dye bath; souring agent; imparting scroop to cotton and silk.
Aqua Ammonia NH_4OH + water *(Ammonia)*	Colorless Liquid	26° Be 29.4% NH_3	Carboys Steel Drums	Wool scouring; dyeing.
Hydrochloric Acid HCl + Water *(Muriatic Acid)*	Liquid	20° Be 31.45% HCl	Carboys Tank Cars Tank Trucks	Souring; removing hypochlorite bleach; dyeing.
Tetrasodium Pyrophosphate, Anhydrous $Na_4P_2O_7$ *(TSPP) (Pyro)*	White Powder	98% $Na_4P_2O_7$ (Equiv. 52% P_2O_5)	Bags	Stabilizing peroxide bleaches; water treatment and dispersing agent; detergent.
Sodium Metasilicate $Na_2SiO_3 \cdot 5H_2O$	White Granules	29.0% Na_2O	Bags Fibre Drums	Kier boiling as detergent.
Sodium Sulfide Na_2S + water	Red Chips or Solid Mass	60% Na_2S	Steel Drums	Dyeing with sulfur dyes; depilatory for wool pulling; desulfuring rayon.
Sodium Sulfite, Anhydrous Na_2SO_3 *(Sulfite)*	White Powder	98.5% Na_2SO_3	Bags Fibre Drums	Rayon manufacturing.
Sodium Bisulfite, Anhydrous $Na_2S_2O_5$ *(ABS) (Sodium Metabisulfite)*	White Powder	97.5% $Na_2S_2O_5$ (Equiv. 65.5% SO_2)	Fibre Drums	Bleaching wool; anti-chlor after bleaching with hypochlorite; rayon manufacturing.
Oxalic Acid $C_2H_2O_4 \cdot 2H_2O$	Colorless Crystals	99.5% $C_2H_2O_4 \cdot 2H_2O$	Fibre Drums	Bleaching; dyeing; for mordanting wool with chrome.
Ferric Sulfate $Fe_2(SO_4)_3$ + water *(Iron Copperas Nitrate)*	Liquid	47° Be 11% Fe	Carboys Barrels	Silk weighting; mordant.
Ferric Nitrate $Fe(NO_3)_3$ + water *(Iron True Nitrate)*	Liquid	43° Be 47° Be 10% Fe 11% Fe	Carboys Barrels	Silk weighting; mordant.

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March, 1948

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Faster, More Dependable Pasting up of Dyes is assured by NSAE Paste—the Onyx anionic wetting agent stable in acid solutions. In high concentrations, this material is one of the most effective penetrants available. No. 75

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Compared with ordinary fugitive water repellent finishes, Repel-O-Tex D3 and D4 insure a definitely superior and lasting effect at lower cost. Textiles treated with these two complementary materials fall well within the limits of accepted standards of durability after the usual wash and dry cleaning tests. They are also made stain and perspiration resistant.

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The story of the Onyxsans has been brought up-to-date in the new Onyx Technical Bulletin TX-1. This informative manual covers the history of these outstanding softening agents from their inception nearly ten years ago to the latest addition to the series. Major advantages, applications and the chemical and physical characteristics of each member of the family are described in detail. If any of your products call for softening action, you will find Bulletin TX-1 very helpful. We shall, of course, be glad to supply samples of any of the Onyxsans for plant-scale tests.

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cannot be shifted to anyone else, continued Mr. Palmer. If employees are informed ahead of time concerning the aims and plans of the company and an attempt is made to show them that the security of their jobs depends on the successful attainment of these objectives, intelligent employee cooperation should be the result. Some of the mills that are doing the best job for their customers, employees, and stockholders are newly equipped mills that a few years ago were seriously handicapped by obsolete facilities. Those meeting with the greatest success called in their employees before placing equipment orders. These original meetings at which plans and policies were discussed were followed by others devoted to problems involved in starting up the new machinery. In addition, educational classes were held for the employees who were also given the opportunity to express their own ideas. The real secret of success was the active personal interest of top management and participation in the proceedings. This infused the whole organization with a spirit of enthusiasm and determination which overcame all obstacles.

The session closed with a summary of the meeting by Nathaniel M. Mitchell, president of Barnes Textile Associates, Boston, who focused interrogations on his hearers based on the papers of the above speakers. Mr. Mitchell characterized the symposium as a "sort of intellectual tumbling barrel," to clarify ideas in regard to management techniques, personnel problems, and human relations.

Joanna Cotton Mills

(*Continued from page 143*)

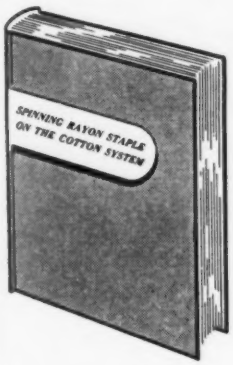
ning addition is completed, the total number of spindles at Joanna Cotton Mills will increase from 89,000 to 103,000. All warp spinning is equipped with the new Regnery spindle-adapter, which was developed by W. H. Regnery of Joanna mills. The new adapter permitted the mill to change to a straight-sided paper tube and to extend the doff intervals by a large percentage. It has resulted in less ends down and a quieter, vibrationless spindle drive.

At present, a large order has been placed for the new aluminum warp tubes which are believed to have all of the advantages of the present type and none of the disadvantages. Since the installation of the Regnery adapter, spindle-running efficiency has increased to such an extent that the mill has begun a systematic program of increasing production by means of

Rayon Reports

Published Monthly by American Viscose Corporation, New York, N.Y. — March, 1948

New Handbook Gives Comprehensive Answers to Questions on "Spinning Rayon Staple on the Cotton System"

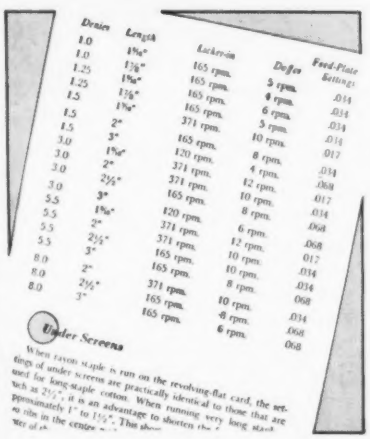


Q. At what stage in yarn production should rayon staple be blended with cotton?

A. Due to differences in fiber cleanliness, the opening, picking and carding of each fiber should be done separately; and since both dye similarly, the blending should properly take place in the drawing-frame stage—preferably in three drawing processes.

Q. Using 1.0 denier, 1 9/16" rayon staple with a cylinder speed of 165 rpm., what should the licker-in and doffer speeds and the feed-plate setting be?

A. Licker-in, 165 rpm.; doffer, 5 rpm.; feed-plate setting, .034.



Denier	Length	Licker-in	Doffer	Feed-Plate Setting
1.0	1⅝"	165 rpm.	5 rpm.	.034
1.0	1⅜"	165 rpm.	4 rpm.	.034
1.25	1⅝"	165 rpm.	6 rpm.	.034
1.25	1⅜"	371 rpm.	5 rpm.	.034
1.5	1⅝"	165 rpm.	10 rpm.	.034
1.5	2"	371 rpm.	8 rpm.	.017
3.0	3"	165 rpm.	4 rpm.	.034
3.0	1⅝"	120 rpm.	12 rpm.	.068
3.0	2"	371 rpm.	10 rpm.	.017
3.0	2½"	371 rpm.	8 rpm.	.034
5.5	3"	165 rpm.	6 rpm.	.068
5.5	1⅝"	120 rpm.	12 rpm.	.017
5.5	2"	371 rpm.	10 rpm.	.034
5.5	2½"	371 rpm.	8 rpm.	.068
8.0	3"	165 rpm.	10 rpm.	.017
8.0	2"	165 rpm.	8 rpm.	.034
8.0	2½"	371 rpm.	10 rpm.	.068
	3"	165 rpm.	8 rpm.	.034
		165 rpm.	6 rpm.	.068

Under Screens

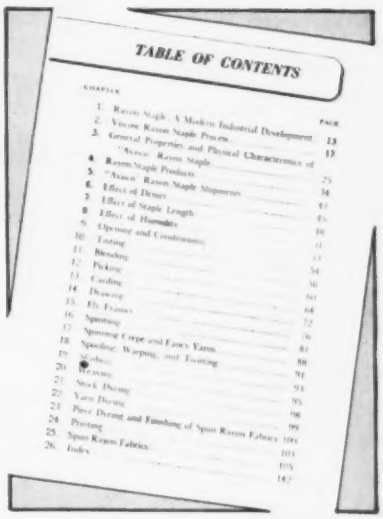
When rayon staple is run on the revolving-flat card, the settings of under screens are practically identical to those that are used for long-staple cotton. When running very long staple such as 2½", it is an advantage to shorten the [illegible] approximately ½" to 1½". This [illegible] to rib in the centre [illegible] set of c[illegible]

Using a cylinder speed of 165 rpm., proper licker-in and doffer speeds and feed-plate settings are indicated in the above table for rayon staple of various deniers and lengths. It is just one of many useful charts, tables and graphs in the new AVC handbook, "Spinning Rayon Staple on the Cotton System."

These are just two of hundreds of technical questions answered in the new handbook, "Spinning Rayon Staple on the Cotton System," just published by American Viscose Corporation. The multitude of facts and figures in the 156 page book are based on years of study in laboratory and full-scale machinery tests at the AVC Textile Research Department.

The book goes far beyond such accepted knowledge, for example, as that yarns spun from fine denier staple are stronger and their fabrics softer. It goes into the details of how to handle such staple. It points out the possibility that neps will be more prevalent, calling for changes in picking and carding operations to achieve clean yarns. Then it details procedures for achieving this result.

Published for the aid of textile technicians and manufacturers, this book is expected to be a valuable aid in advancing still further the tremendous progress of the spun rayon industry. It is being distributed free to technically qualified persons who request it on their business letterheads.



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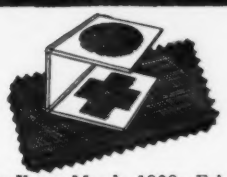
RAYON 20 YEARS AGO



New York, March, 1928—Fabric improvement rather than just cost reduction is the current goal of fiber blending experiments, a textile publication states.

Meadville, Pa, March, 1928—The Viscose Co. will enter the acetate rayon field with a plant to be built here soon, it is reported locally.

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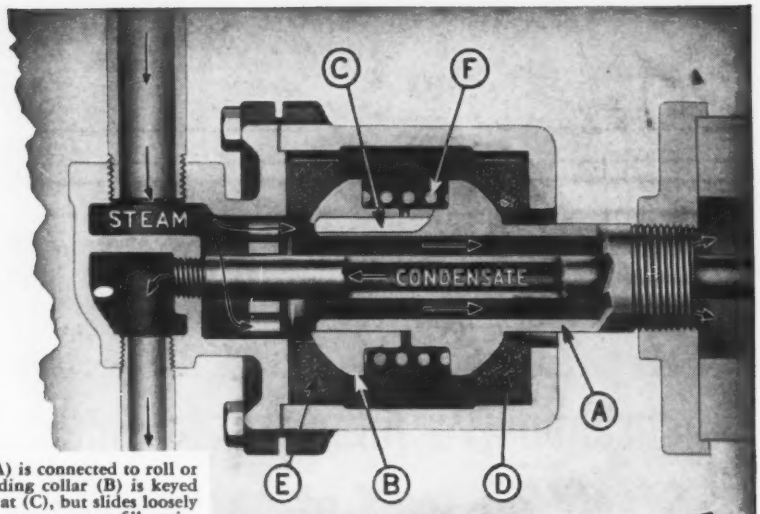

Nipple (A) is connected to roll or drum. Sliding collar (B) is keyed to nipple at (C), but slides loosely over it so pressure can fill entire housing. This pressure becomes the sealing force, by pressing seal ring (D) tightly against nipple. Both seal ring and bearing ring (E) are of special carbon-graphite, which eliminates oiling and packing. Spring (F) is for initial seating only. Type B Joint illustrated; other types, sizes for all needs.

...it's the biggest little trouble-saver in the mill...

In terms of physical size alone, the Johnson Joint could hardly be called big machinery. But in its ability to save time and trouble, and promote plant efficiency, its stature approaches anything the industry has ever seen.

The Johnson Joint was designed to go after the old stuffing box and steam fit troubles in a business-like way, and it literally knocks the stuffing out of them. There's no packing of any kind. There's no oiling required, ever. There's no adjusting — the higher the pressure, the tighter the seal. There's little to fear from misalignment—with provision for both lateral and angular movement built right in. Note besides how neatly it provides for more efficient syphon drainage, through the same head that admits the steam.

In dollars and cents, what does all this add up to? Well . . . enough at least to pay the cost of switching over to Johnson Joints in just a short while. Enough certainly to make the Johnson Joint too big to overlook.

Write for literature and the name of your nearby Johnson representative.

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spindle-speed increases. New variable-speed-motor sheaves and new cylinder sheaves are also being installed, while many of the frames have been equipped with Meadows individual-pulleys which drive the usual four spindles and are supported by ball bearings throughout their lengths. The installation of the Meadows pulleys has been satisfactory and has given a slower-running cylinder shaft because of the 9-in. pulley section, without any decrease in spindle speed.

Mechanical roll pickers are used both in spinning and carding and have met with immediate success because of the ease with which the operators can perform the tedious cleaning tasks. They permit the operator to do a better job with far less exertion. Women operators with nicely lacquered fingernails approve their use.

Tests have been completed on the feasibility of spinning all yarns on warp bobbins and rewinding the filling on a large cone and then on an 8¾-in. quill. The quill holds at least 50% more yarn than the regular 8-in. quill now in use, and the spinning time per doff can be increased from 3½ hr. per doff to approximately 12 hr. by using the Regnery adapter and the straight-side warp tube. The savings in spinning and weaving departments will about balance the labor cost added by extra coning and rewinding processes. But better weaving efficiency and fewer loom stops mean improved quality and less seconds; and, thus far, the tests substantiate the decision to proceed with the change. As a result, spinning frames which now produce filling directly for the loom will be changed over to warp tubes with the adapter assembly, and the filling will be re-wound for the loom.

MILL ADDITION. In planning for an over-all revamping of plant, a new addition was built to the No. 2 mill. The addition consists of four floors, each equipped with the Bahnson Humiduct system of air conditioning. Large fans are built into the glass-block windows, and a continuous flow of air across the width of the rooms insures workable temperatures and rapid air changes. Humiducts are also installed in older parts of the mill, and one new method of air filtering was developed for the weave room as shown in one of the accompanying pictures. Spinning rooms particularly benefit from the reduced temperatures obtained from the air-change system.

There have been 264 Model-X looms relocated on the first floor of the addition, and 209 other looms and nine Whitin-Schweiter rewinders have been moved into another floor of the building. On the third floor, the roving frames have been installed in

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CLOVERLEAF-Freeland BOBBINS

preparation for supplying the new spinning frames which are scheduled to arrive soon. This equipment will consist of 48 frames, 4-in. gage with 276 spindles, and equipped with the Shaw long-draft system. The Regnery spindle adapter will be installed on these frames to take a 10½x1⅛-in. tube.

NEW LOOMS. The mill has added 100 X-2 Draper looms (60 in.) and plans to add 100 42-in. X-2 looms immediately, with 100 more scheduled to arrive later in the year. New fluorescent lights in the weave room are hung considerably lower than ordinarily in order to permit easier upkeep and maintenance and to effect greater lighting intensity at the loom.

While the new looms have 26-in. beams, older looms in the mill are being rebuilt to a 24-in. head and are being provided with new let-offs, take-ups, Stafford thread-cutters, electric-stop motions, Draper braces, cranks, and lay swords. The older looms will be rebuilt by mill overhaulers.

In the cloth room, new fluorescent lights and new Parks & Woolson shears and de-speckers have been added. The new 2-blade shears are a considerable improvement over the old 4-blade shears. Cloth scrays were built by the mill shop in order to speed up the rolling-up heads, with the result that about half the folders were eliminated.

A new fork truck in the shipping department has repaid its cost in the first year of operation. The efficiency of the truck has allowed the mill to use a much greater amount of storage space in the warehouse, and it is considered as one of the best investments made. Baled cloth and baled cotton are handled by fork-trucks.

The testing department has been enlarged; and its equipment was increased to include a Saco-Lowell lap meter and sliver tester, an Emerson oven, and scales.

Lathes, power saws, presses, milling machines, and new welding equipment have been added to the shop. To increase the compressed-air capacity, an Ingersoll-Rand two-stage compressor has replaced all the older compressors, with the latter equipment now being held for emergency or additional air as needed.

A new apartment building containing 20 3-room and 4 5-room apartments has been added to the village. Fifty 5- and 6-room houses have also been built. These houses have varied floor plans and exterior designs and are constructed of hollow tile which provides insulation both winter and summer. Each one is equipped with central oil heat. The new apartment building is steam heated from the mill's boiler system. Each apartment

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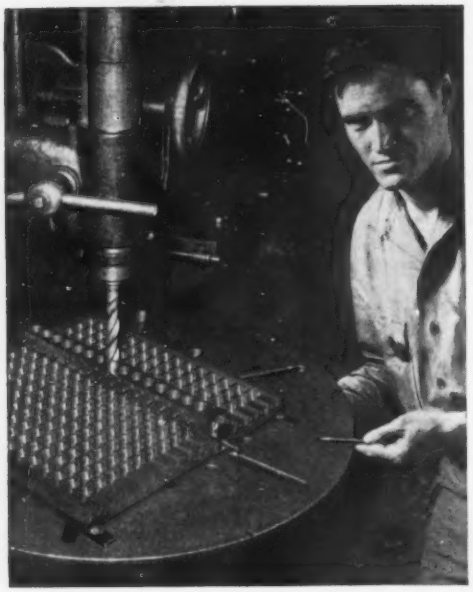

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High-Frequency Heat

(*Continued from page 123*)

appreciable amount of the vaporized moisture, which returns to the yarn and leaves it substantially in equilibrium.

One plant using Industrial rayon found no difficulty in setting 8-oz. and 1-lb. bobbins without wrapping the packages. It has been speculated that this may be due to the fact that the finish on this yarn is semi-waterproof and therefore does not lose moisture readily. Another possible explanation is that the yarn is continuously processed, very soon after twist setting, under carefully controlled temperature and humidity.

When the problem of balancing high-twist crepe which had to be raised to 212° F. was encountered, so much moisture was driven off from an unwrapped package that the residual was considerably below the equilibrium point. After the yarn had cooled, it regained the lost moisture from the atmosphere, which unbalanced the set. It was obvious that wrapping small individual packages in waxed paper would involve so much labor that the process would become too expensive to be practical. The situation was met by heating the yarn in air-tight fiberboard containers large enough to hold a dozen or more packages. The packages were left in the containers until cool, during which time they reabsorbed most of the vaporized moisture and a permanent balance was obtained.

Another possible solution is to establish an initial moisture content in the yarn above normal equilibrium prior to heating. The heating process then brings the yarn only to normal equilibrium, and there is no subsequent regain.

It should be emphasized that this difficulty has so far been encountered only in the case of a yarn that was inherently difficult to balance by any means.

If the yarn is further processed immediately after twist setting and before much regain has occurred, no difficulty will be experienced with unbalance. One mill is very successfully setting yarn on quills just prior to weaving without wrapping them. Thus, high-frequency twist setting of small packages is best adapted to high-speed, continuous operations where the yarn

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Who Makes It?

Where Can I Buy It?

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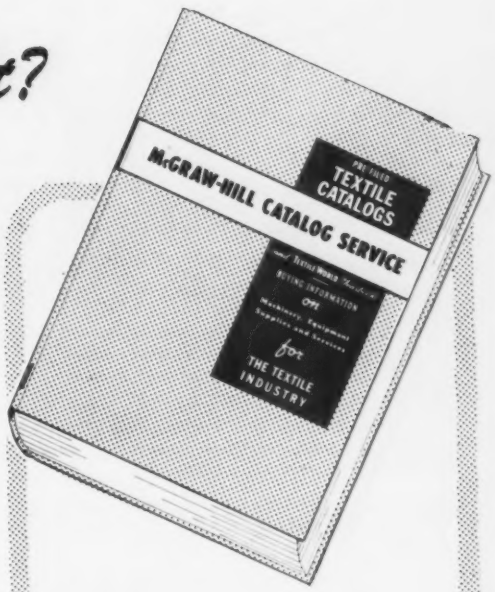

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2. A comprehensive Classified Product Directory which lists, by product reference, the names and addresses of *all* recognized sources of supply for mill equipment, supplies, dyestuffs and chemicals. (Includes cross-reference to the catalog pages where more detailed data is available.)

3. Sixty-four pages of valuable information on mill practice, techniques, processes, yarn weights and strengths, conversion tables, sizing procedures, etc. . . . a complete handbook of hard-to-get facts.

If YOU are not now receiving the TEXTILE CATALOGS

and are responsible for specifying or buying equipment and materials at a textile mill, send a request on your company letterhead giving your name and full title. We will send you the current edition.

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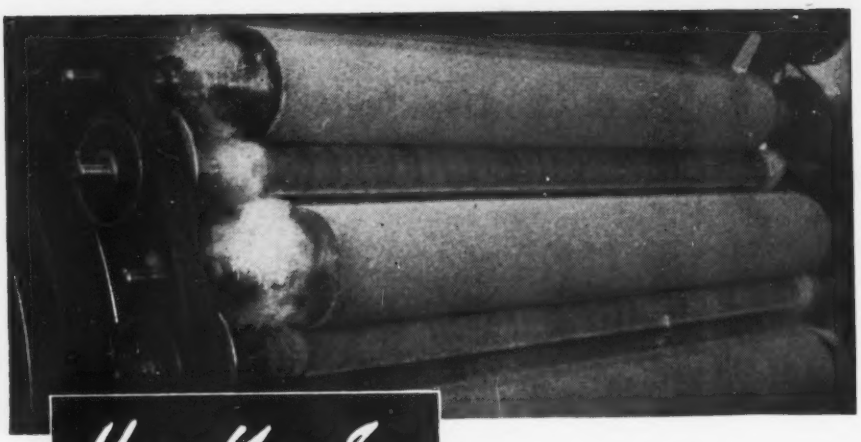

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FOR EVERY NEED

• Nearly a century of service to the textile industry gives Cole the know-how to design and erect elevated tanks best suited to the individual needs of your mill. Whether you require a tank capacity of 5,000 or 2,000,000 gallons, Cole engineers will give you the right design at the right price — for dependable, economical water service. We invite your inquiries.

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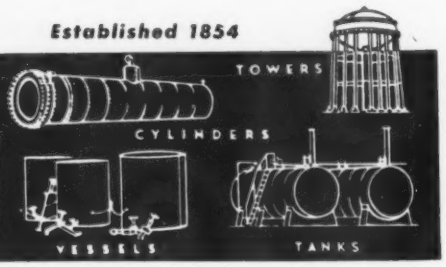


is not stored for a long period before further processing.

HANDLING BOBBINS. A unique feature of the installation handling bobbins is that instead of being carried in a vertical position on a belt, the bobbins are pushed between the electrodes, resting horizontally on a track, which causes them to roll on their heads on an axis perpendicular to the electric field. By thus rotating them, all parts of the package receive an equal exposure to the field, resulting in uniform heating.

Rotation on an axis perpendicular to the field is a necessity in heating bobbins; cones and headless packages may be heated without rotation with their axes parallel to the flux lines, because the tubes are light. Although the tubes usually heat to a higher temperature than the yarn, the difference is not great enough to be important in effect.

If the bobbin shafts are wood or plastic, they will overheat if placed with the axes parallel to the field because of the greater weight and density of the material. If the shafts or heads are of metal, they will shield the yarn and prevent it from heating at all.

Placing the bobbin with its axis perpendicular to the field causes the flux lines to traverse the rayon filaments for a distance somewhat greater than the diameter of the bobbin, resulting in more effectual heating than when each filament has air air gap in series with it, almost equal to the thickness of the filament.

With iron-head bobbins, the high-potential electrode must be ½ in. or so narrower than the bobbin length, and care must be taken to avoid arcs to the head.

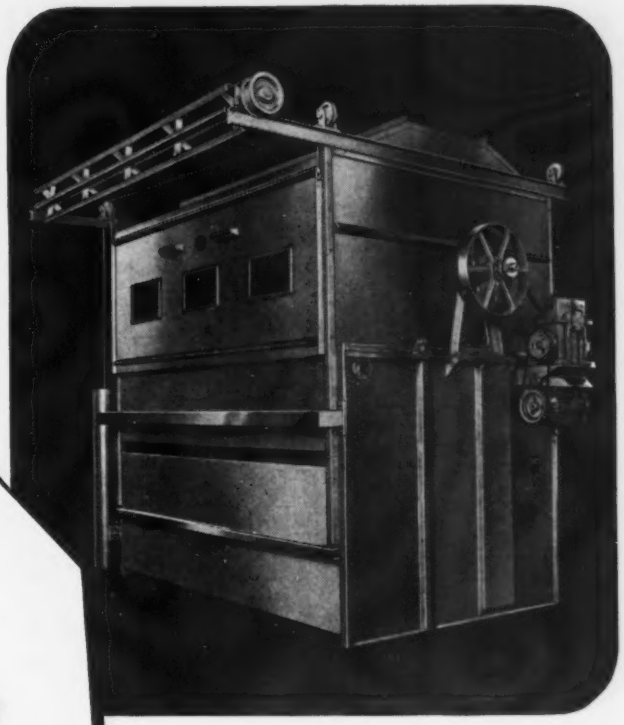
Heating rayon on bobbins results in wide differences in temperature distribution. This is particularly true of iron heads where the rayon next to the head is shielded by the metal and loses heat rapidly by conduction to it.

Experience has shown, however, that temperature differences of as much as 50° F. can be tolerated without affecting the uniformity of the set.

Attempts have been made to heat quills and bobbins on pin trays without success. The metal in the pins shields the yarn from the field, resulting in intolerably high temperature differences.

This behavior has been a serious deterrent to the wider adoption of high-frequency twist setting for small packages, since it necessitates a double handling operation. They must be taken off the pin trays and placed on the conveyor, then loaded back on the pin trays.

There seems no good solution to



5 ADVANTAGES

OF MODERN, HUNTER STAINLESS STEEL KETTLE

FOR PIECE DYEING & BLEACHING

The unique design and many refinements of the Hunter Stainless Steel Piece Dye Kettle make it the last word in modern, totally enclosed dyeing and bleaching equipment. It is unusually flexible, easy and economical in operation and, because of its rugged construction, it will give years and years of service. It will pay you to study the five advantages listed below, if you are planning to replace or expand your present dye house unit.

WRITE FOR FULL INFORMATION

1. Rigid construction: all driving and driven members supported in newly designed separate frames.

2. Three-speed drive for main reel for increased flexibility.

3. A size and type for any piece dyeing or bleaching requirements.

4. A tight top enclosure, which is windowed and lighted, saves up to 35% of steam for the dyeing cycle. Entire Kettle may be insulated if required.

5. Proved performance on fabrics ranging from mohair plushes, woolens, worsteds, unions and blankets to spun rayons, etc.

JAMES HUNTER MACHINE CO., NORTH ADAMS, MASS.

{ Founded *1847* }

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CREELS FOR EVERY PURPOSE

"TYPE RM" MAGAZINE CREEL

All Welded Steel Construction
Indestructible Double Light Indicator
Simplified Fool-Proof Electronic Stop Motion
Exclusive Self-Locating Swinging Spindle Arms (Pat. Applied For).

Each Creel Is Made in Sections Completely Assembled in Our Shops, So There Is a Minimum Amount of Labor Required for Installation.

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You'll find no dusting on fabric with RunRite Plastic Sheaves because RunRites are automatically spaced to prevent one sheave rubbing another. Their smooth, perfectly balanced strap surface guarantees longer life for harness straps. Once installed, RunRites need no further attention for a long life of perfect service.

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this handling problem except to change the construction of the pin trays. One answer might be to substitute plastic or wooden pins for metal. An even better one is suggested by the fiberboard boxes used in twist-setting crepe. The use of boxes like these for carriers would permit the yarn to be put through the high-frequency oven without individual handling of the packages.

Another advantage of the fiberboard tote boxes is that they are sufficiently cheaper than the metal pin trays to be expendable.

OTHER APPLICATIONS. It would be impractical to discuss with equal thoroughness other possible applications of high-frequency heating in the textile industry which have not as yet proved their practicability as definitely as rayon-cake drying and twist setting. It should be mentioned, however, that high-frequency twist setting has been applied to cotton, wool, and nylon with a success equal to that attained with rayon. Sized nylon is being dried commercially on sizing tubes in about 5 min.

Drying dyed wool and cotton yarn in packages offers all the advantages of uniformity of shade and avoidance of color migration and deterioration observed in drying dyed rayon.

There has been much exploration of the field of setting various resins in yarns and fabrics with high frequency; and although no commercial applications has yet been made of the process, there is good evidence that this is the most practical method of achieving the necessary high temperatures without damage to the material.

Probably the most widespread interest among textile men is to be found in the possibility of substituting high-frequency heating for slasher can dryers.

Can dryers have the following disadvantages, all of which are susceptible to improvement by the use of high-frequency heating. (1) The dried yarn is oval rather than round. With high frequency, the yarn could be dried without touching any surface, producing a round strand. (2) Size surface is rough and non-uniform due to sticking to the can surface and adjacent threads, causing size flaking and non-uniform tension in weaving. Again the fact that high-frequency drying does not require contact to any surface would eliminate this trouble. (3) Stopping the can slasher to put in a lease cord or tie a broken end might overheat the yarn on the can. With high frequency, the power could be shut off as quickly as a loom is stopped when the yarn breaks. Since there is no residual heat in the appli-

CALCO *dyelines*

PUBLISHED BY CALCO CHEMICAL DIVISION, AMERICAN CYANAMID COMPANY
Bound Brook, New Jersey
New York • Chicago • Boston • Philadelphia • Charlotte • Providence

NOW AVAILABLE—A VAT GREY OF EXCELLENT FASTNESS AND LEVELNESS

Until the advent of Calcosol† Grey 2G Double Paste and Calcoloid† Grey 2G Double Powder, the production of fast grey shades presented a difficult problem. Available vat dyes with adequate fastness properties were extremely difficult to dye levelly, especially on yarn in skein or package form. When, as was usually the case, a grey vat dye had to be shaded with other vat dyes, level dyeing difficulties were accentuated. Available vat dyes with good level dyeing properties lacked really excellent fastness properties.

Developed after intensive research, Calcosol Grey 2G Double Paste and Calcoloid Grey 2G Double Powder have attained wide commercial acceptance and increasing popularity. The achievement marks the first time that a vat grey has been made available which combines excellent fastness and excellent dyeing properties.

In package dyeing it will produce a range of light grey shades on thread yarn; and it will produce pale grey shades on fine cotton yarns for high-quality shirting fabrics which are scoured and bleached after weaving.

In the piece goods field, large yardages of appropriate fabrics, regularly dyed with Calcosol Grey 2G Double Paste or Calcoloid Grey 2G Double Powder, readily meet the severe fastness specifications for industrial uniform fabrics which go into waitresses' and nurses' uniforms, into men's work clothes and into outdoor sportswear.

On wool, vat-dyed with Grey 2G, outstanding fastness to light is obtained. For this reason it is recommended for use on automotive fabrics and other types of upholstery where satisfactory resistance to several hundred hours of sun exposure is important.

Recommended Shading Dyes

Suitable shading dyes for use with Calcosol Grey 2G Double Paste and Calcoloid Grey 2G Double Powder are:

- Calcosol Copper Brown Paste and Calcoloid Copper Brown Double Powder
- Calcosol Brown BR Paste and Calcoloid Brown BR Double Powder
- Calcosol Brown R Paste and Calcoloid Brown R Double Paste
- Calcosol Violet BN Extra Paste
- Calcosol Red BN Double Paste

†Trade-mark

CHECK LIST FOR THE PACKAGE DYER

The package dyer, dyeing vat shades economically on cotton yarn to meet current demands for a complete range of shades with good fastness properties, would need the following dyes in his drug room:

- *Calcoloid Grey 2G Double Powder
- Calcosol Navy Blue Paste
- *Calcoloid Blue BLD Double Powder
- *Calcoloid Dark Blue BOD Double Powder
- *Calcoloid Copper Brown Double Powder
- Calcosol Brown BR Paste
- *Calcoloid Brown R Double Powder
- *Calcoloid Brown G Double Powder
- *Calcoloid Olive R Double Powder
- Calcosol Olive Green BN Double Paste
- Calcosol Jade Green N Supra Double Paste
- *Calcoloid Golden Orange GD Double Powder
- *Calcoloid Golden Orange RRTD Double Powder
- *Calcoloid Pink FFD Double Powder
- Calcosol Red BN Double Paste
- *Calcoloid Yellow GCD Double Powder

*Paste type available also

Check your stock. Most of these dyes can be applied by either the pigment method or the reduced method. For specific information, consult your Calco representative.

The above dyes are also applicable to cotton in various other stages of manufacture, such as warps, raw stock and piece goods. By using them for various types of applications, drug room inventory can be better controlled.

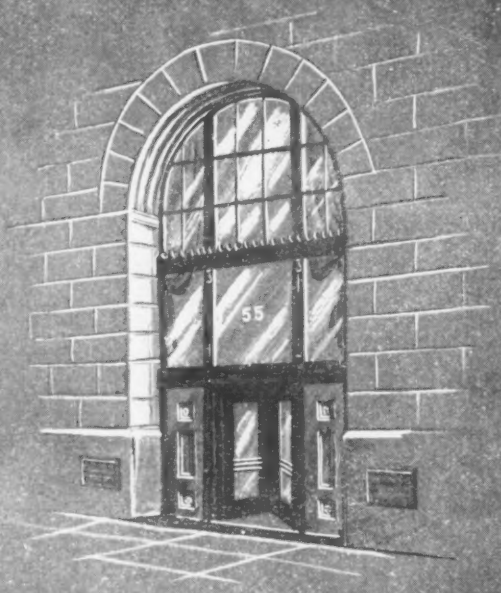
THE DYE CLINIC

If shaded dyeings appear on piece goods at the padder, here are some of the possible causes:

- Uneven set on padders.
- Pad rolls worn to a smaller diameter in the central portion or where fabric selvedges usually run.
- Pad rolls of uneven density, due to improper curing during their manufacture.

- Non-uniform flow of dye over the cloth entering the nip.
- Guide rolls shifted out of parallel with other rolls.
- Guide rolls stuck in bearings and dragging, or not revolving.
- Expanders not contacting cloth with uniform pressure across the width.
- Non-uniform moisture content of cloth entering the padder.
- Settling of dye dispersions in supply tank or padder pan.
- Uneven winding up of cloth on the take-up shell.
- Non-uniform removal of impurities from cloth preparatory to dyeing.
- Uneven height of singer flames.
- Cloth not protected from foam when it enters bath.

"Yeah I know—you musta left your tickets at home!"



TEXTILE BANKING COMPANY

Inc.

Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

cator, there will be no overheating. (4) Drying across the warp is non-uniform. The use of high frequency automatically cures this situation for the same reason that rayon cakes are brought to a uniform residual moisture. (5) Drying is not fast enough. Infra-red has been used in an attempt to speed up drying but sometimes scorches the yarn. High frequency cannot scorch the yarn. When the yarn is dry, the power factor drops so low that it will no longer heat.

The problem of achieving sufficient speed with an electrode system of reasonable length has, so far, proved the greatest stumbling block in the development of high-frequency slasher dryers. The best solution to this problem may be to use the high-frequency system as a booster to bring moisture content down to about 20% before putting the material on a can dryer. This would obviate the majority of the most serious disadvantages of the can dryer.

Like cake drying, the power cost of high-frequency slasher drying must inevitably be at least 6¾ times as much as steam drying. Product improvement, plus other economic advantages, must be sufficient to justify an increased power cost of about ½¢ per lb.

Even without considering possible future applications now in the process of development, which have not reached the stage of commercial adoption, high-frequency heating has demonstrated sufficient usefulness as a practical tool in the textile industry to show that it has its feet on the ground. This position could never have been achieved without the far-sighted vision of the industry itself in investigating the possibilities of this newest of industrial processes.

Seamless Knitting

(*Continued from page 139*)

Carolina State Vocational School does not have to discard a stocking that might otherwise be damaged half way through the knitting process, thereby obtaining some savings in 15-den. yarns. Needle-breakage problems have also been simplified and greatly reduced; and irregularity in yarn, which would cause an excess of tension, automatically stops the machine, thus reducing poor-quality hose.

A signal light and bell are incorporated into the stop motion, enabling operators to hear as well as see the signal which indicates that the circuit is closed and that the machine is stopped. These attachments were added to the system in order to overcome some of the difficulties of the operator when assigned to the multi-

DRUMMOND

SOAP AND FLAKES LEAVE

FABRICS CLEAN . . . SOFTER . . . COLORFUL!

You couldn't ask for an easier, quicker-sudsing soap or flakes than Drummond to give your fabrics the "New Look"!

Both Drummond Soap and Flakes have the advantage of high body and low alkali content . . . an advantage that leaves fabrics clean with a downier feel, brighter color, and whiter white. Try a sample and note the difference.

Write today for your FREE, ample-size sample of Drummond Soap—just ask for Flakes or Solid.

TEXTILE OILS AND SPECIALTIES

Standard Soap Co. of Camden

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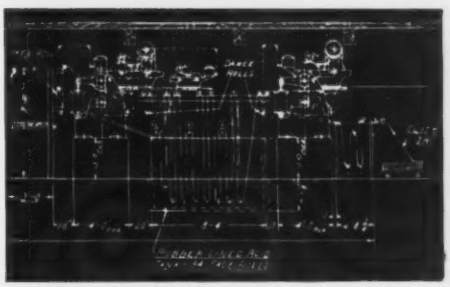
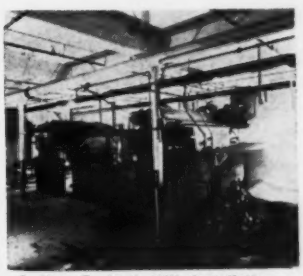
The Fleet Line

CARBONIZING RANGE

Women's wear woolens pass at 10-40 yards per minute from the wooden* wet out box through the rubber lined* steel acid tank, pin type tenter dryer, infra-red baker and continuous crusher mill (not shown), thence by truck to subsequent operations.

The skyframe, shown in the diagram, permits longer exposure to acid in a given floor space by increasing the vertical travel of the cloth. Even when the cloth is above the bath level, the excess acid runs down over it on its way back into the bath. Soaking is thus more effective and complete.





A New England Mill Installation

Here are other installation features of the Riggs and Lombard Carbonizing Range:

1. Heavy squeeze-roll extractor for maximum results regardless of speed.
2. Hydraulic, automatic, speed control insures constant even tension.
3. Variable speed drive.
4. Intermediate rubber squeeze rolls, rubber* immersion rolls and top idler rolls.
5. Thorough, even, uniform drying at temperatures below the boiling point.
6. In many installations a continuous neutralizer completes the range operation.

*These often are of polished stainless steel, with SMO used in acid tank. Circular on request

RIGGS AND LOMBARD INCORPORATED

FOOT OF SUFFOLK ST., LOWELL, MASS.

Right Keys to Successful Spinning

You can only unlock the door to spinning success and steady profits with the right key. The ring traveler, often called the most essential single element of good spinning, is the key and the DARY Ring Traveler is the *right* key.

DARY is known for quality manufacture and DARY Ring Travelers are superior for every spinning & twisting job. Uniformity, balance and finish make these key performers last longer and at higher spindle speeds with every count and type yarn.

Your DARY Representative will gladly tell you the whole story of Dary Dependability. Remember, the password is *Dary*, the key, Dary Ring Travelers; they open the way to spinning profits.

PROCESSED
SYMBOL OF SUPERIORITY

The DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS

JOHN E. HUMPHRIES, BOX 843, GREENVILLE, S. C.
JOHN H. O'NEIL, BOX 720, ATLANTA, GA.
H. REID LOCKMAN, BOX 515, SPARTANBURG, S. C.

ple-machine sets which characterize 400-needle seamless production. With the aid of the bell and light signals, the operation of multiple-machine sets is facilitated.

OILING DEVICE. The oiling device shown in the photograph lubricates and cleans needles and sinkers, aids in eliminating streaking in seamless hose, and reduces the possibility of pull threads developing in the hose during subsequent handling. The 15-den. yarns used at the Belmont school were more easily knitted when passed through the lubricating chamber above the needles. Examination of the latch needles showed less accumulation of size upon them after immersion of the yarn in the lubricant. Excess accumulation of size prevents the latches from opening fully and results in faulty knitting or poor quality, or both.

The attack made on streaking problems at the North Carolina school was based upon the belief that equalization of the wales would prevent most of the troubles. Nylon loops are stable and they do not tend to slip when once formed into a stitch; stitch formation therefore is the critical point in the process.

Weaving Developments

(*Continued from page 117*)

trigued weavers and inventors," Mr. FitzGerald continued. To design and run a shuttleless loom in a laboratory is not too difficult; and, in fact, Draper has some of new designs running and producing cloth, he added. "But to design such a machine which will produce cloth at the same or lower cost per yard than the present-day high-speed fly-shuttle loom is a far more complex problem. Our engineers are actively engaged with this, and much of our research effort is being spent in the work of developing a loom to take filling from an outside source which will at least equal the fly-shuttle loom in efficiency and which can be marketed at a price to make the investment in this type of machine a profitable one."

CROSS-LAY MACHINE. "We have running a laboratory mock-up of a cross-lay machine which will cross-lay unspun webs of many types to produce non-woven fabrics with equal strength in two directions," Mr. FitzGerald said. "The present machine is a crude laboratory model producing fabrics 20 in. wide, but from our experimental work with it, we know we can successfully cross-lay webs. Based on our experiments, the design

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on this new
CRABB LAG

Better Equipment
makes better
PINS & LAGS

Uniformity of desired hardness and temper is essential to long life and perfect service from PINS.

Our new Micromax controlled heat-treating equipment insures this. We produce LAGS of laminated steel for extra heavy duty, stronger than ever before known, also lags with steel backing and steel facing.

Kiln-dried Rock Maple is used in making our lags, assuring freedom from splitting and guaranteeing long life.

Large stocks of PINS carried for prompt service on most orders.

• *77 Years Continuous Service to the Industry*

WILLIAM CRABB & CO.

301 THIRD AVENUE
NEWARK, N. J.

BETTER

No matter what type of dyeing machine you need Van Vlaanderen makes it.

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Better production and better quality of finished fabric are synonymous with the name

VAN VLAANDEREN

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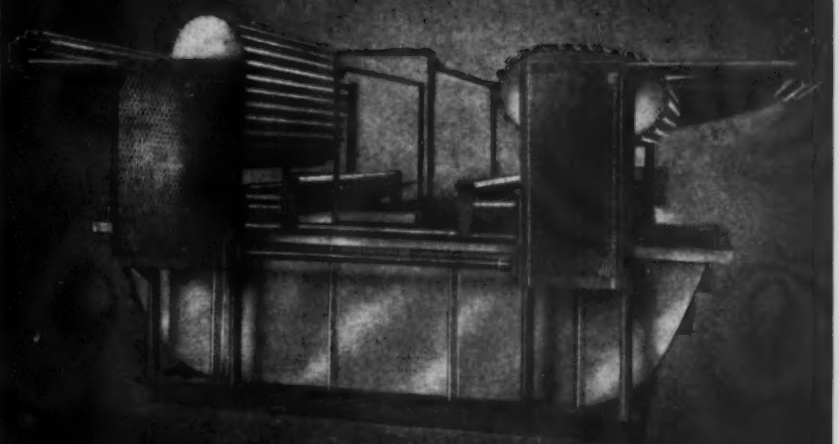
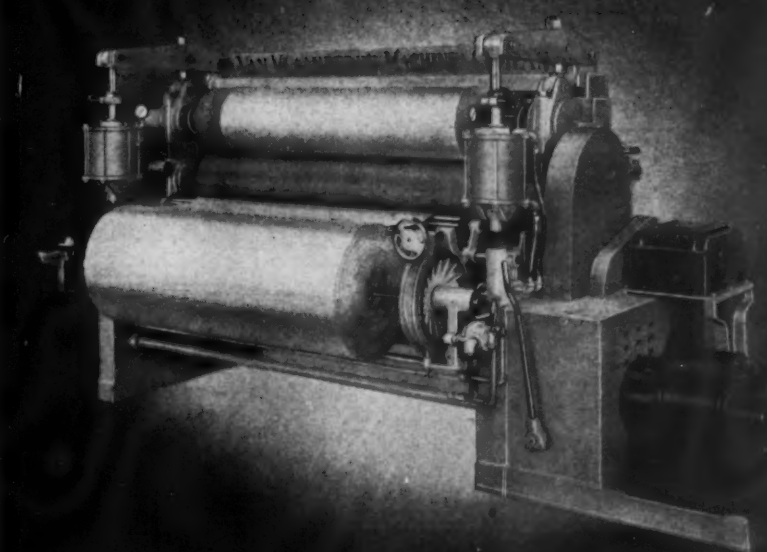
World's largest manufacturer of machinery for processing modern fabrics





U. S. RING TRAVELERS

Long-Life Bronze for Wet Twisting

U. S. bronze travelers give longer life today than ever before because we've tried out many special alloys and arrived at an exceptionally good one. It's safe to say the resistance to cutting and general service life is 20 to 35% greater than just a few years ago. The combination of better bronze and our distinctive Bevel Edge on wet twisting really makes a difference. Swing to U.S.—a swing in the right direction.

On-the-spot Service

Prompt Delivery

U. S. men are spotted around where the busy spindles are. A request for service will bring you a prompt response from a man equipped by practical experience to help you keep traveler troubles down and yarn production up. Our Southern and Northern warehouse stocks permit same-day or over-night delivery 'most anywhere.

A Style and Size for Every Textile Fibre

WORKING SAMPLES GLADLY SENT

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AMOS M. BOWEN, President & Treasurer
HOME OFFICE & FACTORY: PROVIDENCE, R. I.
SOUTHERN OFFICE & WAREHOUSE: GREENVILLE, S. C.

Write, wire or phone nearest office.

W. P. Vaughan, W. H. Rose, Greenville, S. C. Box 1048—Phone 3031
O. B. Land, Athens, Ga. Box 1187—Phone 478
L. H. Meller, Jr., Mid-Atlantic States
123 Treaty Rd., Drexel Hill, Pa. Phone Hilltop 2946
H. R. Fisher, Concord, N. C. Box 83—Phone 8366
C. W. Smith, H. J. Smith, Providence, Box 1187 Gaspee 0100

of a new machine to produce fabrics 40 in. wide is now practically complete. We hope to have this machine built this summer. Whether it will be a success as a machine remains to be seen, and whether it will be economically practical is another question."

Discussing only the product-development aspect of the research done by Draper Corp., Mr. FitzGerald stated that about 100 men are employed at Hopedale in this work. Of these, 50 are engaged wholly in customer engineering and design, and the remaining 50 are engaged in research and development or experimental projects. This latter group consists of mechanical engineers, metallurgists, chemists, textile engineers, machine designers, etc.

Another research department in the company's South Carolina plant specializes in redesign of older models and works closely with the home office on development in general. In addition, several consulting and designing engineering firms in Boston, New York, Providence, and in a town near Hopedale are assigned projects. A patent department follows related foreign and domestic patents, and foreign representatives keep the company informed of developments abroad.

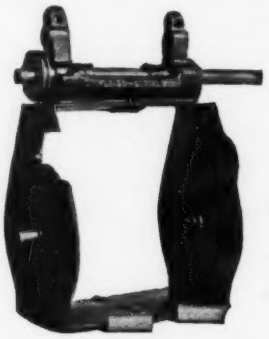
The use of modern tools of science and engineering was described by Mr. FitzGerald. The oscillograph is used for strain-gage tests and to procure data on instantaneous current and vibration. Strobolites are used in studying problems involving timing. The high-speed motion-picture camera is frequently used in connection with shuttle-checking. battery-transferring, and moving parts in general.

Materials-Handling Show

(*Continued from page* 116)

the second set is at the bottom ready to push up the next load of packages or cartons. When it is desired to send cartons down, the chains are arrested by push-button control and the fingers drawn under the slide so as not to interfere with the gravity movement.

PRIME MOVER. A versatile gasoline-powered prime mover was announced and shown by Bell Aircraft Corp., P. O. Box 1, Buffalo, N. Y. The unit consists of a three-wheel chassis steered manually by a rear caster wheel. On the chassis can be mounted a dumping bucket suitable for handling coal or other material, or a stake-platform deck 44 in. long and 30 in. wide. Bucket volume is 10 cu. ft., truck capacity is 1,000 lb., engine is 3 hp., and the unit is said to operate for



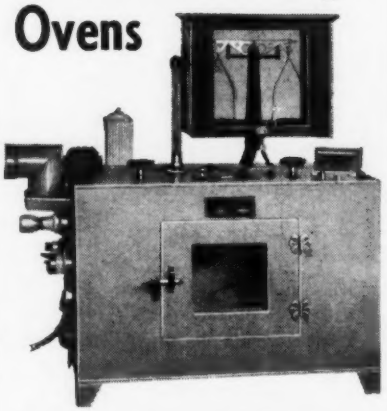
Recondition your CONER-HEADS

Style #50 Universal Coner Heads can be reconditioned with bronze bushings, new shaft and new pulley at a great saving to you.

Write for prices and full details.

Wayne Manufacturing Co.
Honesdale, Pa.
Manufacturers of Textile Mill Supplies

Textile Testing Ovens



For *accurate* testing of water content in yarn. The 8-basket oven, with 3" x 3" baskets, may be changed to 6 baskets, 4¼" x 4¼", both 6" deep. Occupies table space 20" x 40".

EMERSON Ovens

Are built in different types to handle wool, cotton and silk. Baskets are designed specially for each class of work.

Write for details on EMERSON OVENS to fit your process.

EMERSON APPARATUS CO.
177 Tremont St., Melrose 76, Mass.

YOU KNOW ABOUT "TAILORED" GARMENTS

. . . BUT YOU MAY WELL ASK

WHAT IS

Tailored Color

Florence Tailored Color is the exclusive dyeing of cotton, wool, synthetic or blended yarns by our laboratory and technological methods to assure you color exactly as specified. **Florence Thread** maintains complete facilities and specializes in **Tailored Color.**

Tailored Color yarn possesses many advantages.

- ★ Most important, you get the exact color you specify—
- ★ You get the fastness required—as you specify—
- ★ And, you get yarn quality—as you specify.
- ★ All of which adds up to a quality product, for your customer, correct —as specified—in color, fastness and durability.

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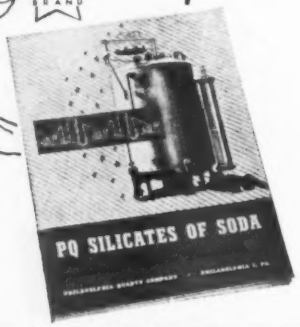

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8 hr. on 3 gal. of gasoline. Also available is a 50-in.-blade snowplow unit which can be attached to the prime mover.

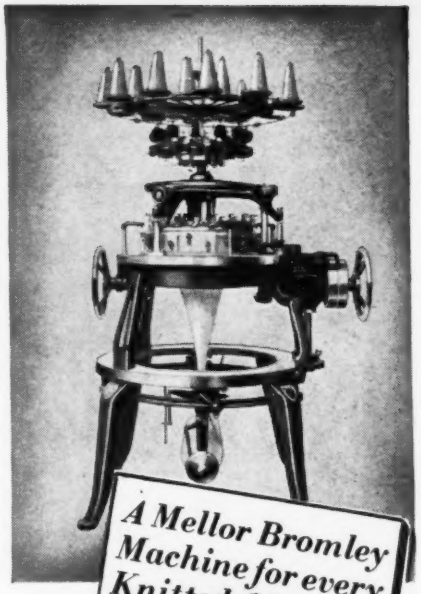
Use of new metals and other materials was seen in many instances. Pallet Systems, Inc., 101 Guardian Bldg., Cleveland 14, Ohio, showed a magnesium dockboard for railroad car loading which weighs only 34 lb. but which is designed to support a 1,000-lb. axle load. Dockboards custom-designed for other needs are also available. Aluminum and magnesium hand trucks, barrel skids, pallets, skids, and skid boxes were displayed by many manufacturers. Pallets were shown made of wood, wood and steel, wire-bound wood, corrugated paper, aluminum, steel, steel wire, and rubber-covered steel-wire.

PNEUMATIC FORKS. Another interesting development was that of pneumatic forks for handling cartons, cases, bricks, concrete blocks, etc., without pallets. Lift trucks with this attachment were shown by Clark Truetractor and Service Caster & Truck Corp. The fork on this attachment has four or five prongs instead of the conventional two. The two outer prongs are narrow, are mounted at the edges of the elevating platform, and have a pneumatic tube on the inside face. The center prongs also have pneumatic tubes on both faces. The forks are moved into place under cartons or blocks "cubed" in a certain manner around a template made for the purpose. When the forks are under the load, the tubes are inflated to grasp and hold the spaced lower rows of cartons or blocks, and the entire load is raised.

Many devices were shown to ease the job of the hand trucker, including truck frames of lightweight metal. One such device shown by Stevens Appliance Truck Co., P. O. Box 897, Augusta, Ga., was a crawler tread mechanism which was mounted on the back of a hand truck to provide a continuous tread to ease the task of moving of hand trucks on stairways. The mechanism consisted of rubber belting which rolled on roller bearings mounted in an aluminum frame.

A motorized gasoline-driven hand truck supported by a third wheel was shown by Comet Mfg. Co., 9253 Nicollet Ave., Minneapolis, Minn. The truck is said to be capable of handling up to 1,500 lb. on 20% grades, and 2,000-lb. loads on level runs. The unit sells for $299.50 at the factory.

A new, 2,000-lb. capacity, gas-driven fork lift truck was shown by Buda, 15451 Commercial Ave., Harvey, Ill. Only 32 in. wide and able to turn 90° in 57 in., the truck can lift 9 ft.,



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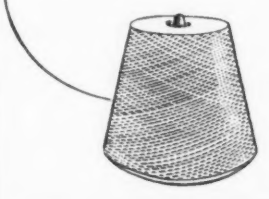
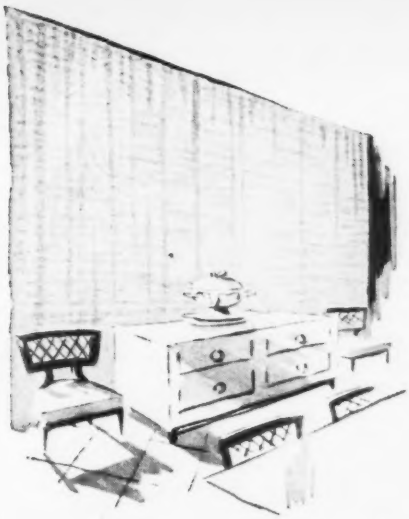
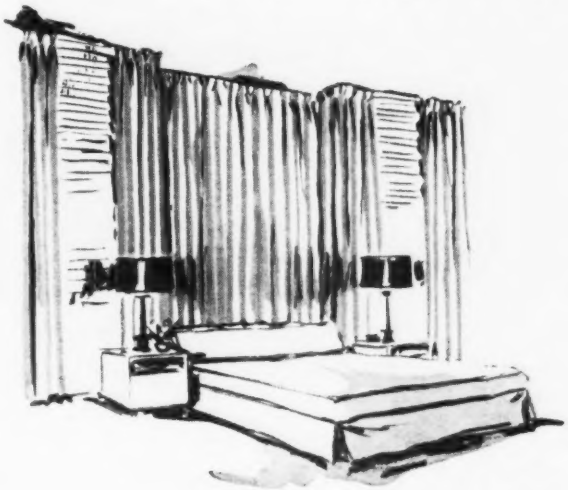




Lanese*

synthetic fiber—the key to contemporary drapery and upholstery fabrics



With a definite preference for rich, luxurious decorative fabrics, home-makers are finding in fabrics made with Celanese Lanese synthetic staple fiber, a combination of beauty and practicality previously unattainable. Even when these fabrics are hung from ceiling to floor, over wide areas, and even when they are as heavy as one pound per yard, it is possible to obtain complete dimensional stability with Lanese. Tests in use have shown that the length these fabrics are hemmed is the length they remain, for they stay true to size despite wear or cleaning. What's more, drapery and upholstery fabrics woven with Lanese can be constructed in a variety of weaves. Through the use of Lanese, a wide range of brilliant colors is possible and combined with other fibers a variety of color effects can be obtained through cross dyeing.

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has pneumatic tires, and four speeds forward and four reverse.

PALLET BOX. A collapsible pallet box consisting of a solid pallet as the box bottom, four removable sides, and a top was shown by Pallet Systems, Inc., 101 Guardian Bldg., Cleveland 14, Ohio. The box can be assembled and disassembled very quickly through use of special fasteners requiring only a quarter turn to engage or disengage. When tiered, one side of the box can be removed and goods taken out. When knocked down, the collapsed box displaces less than one-third the space of the assembled unit. Loading may be accomplished with the top and one end removed. Several sizes are available.

A low-cost, power belt conveyor designed for moving medium-weight loads between floors or horizontally was introduced by Rapids-Standard Co., Inc., Grand Rapids 2, Mich. Built in lengths up to 30 ft. in 2½-ft. multiples, the conveyor can be lengthened or shortened at any time by addition or removal of standardized sections. Boat-type supports provide height adjustment of hoist-drive and take-up pulley ends of the conveyor. A ⅓- or ¼-hp. motor which provides power may be mounted at either end of the frame. Self-supporting feeder sections at both ends permit coupling to other conveyors. A flared channel guard rail reported to minimize friction of moving packages is standard equipment. When equipped with a ⅓-hp. motor, the 11-ft. unit at a 25° pitch will move a distributed load of 155 lb. or 27.5 tons per hr.

A single-stroke lift truck for use with skid loads up to 2,500 lb. was shown for the first time by Lyon-Raymond Corp., Greene, N. Y. Features claimed include greater underclearance for negotiating ramps and light weight, both made possible by a single-frame design incorporating use of heavy-gage formed-steel plate. Roller-bearing-mounted front wheels are 8 in. in diameter. The lifting device is push-button controlled, and a safety lock on the handle prevents injury to operators.

HOISTS. A new line of low-cost, low-capacity, wire-rope hoists available in ¼, ½, and 1-ton capacities was introduced by Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Pa. The frame of the portable hoist is reported to be a heavy, one-piece, ribbed-steel casting, constructed for use with lug, plain-trolley, motor-trolley, or winch-type mounting. The hoist drum has machine-cut grooves for guiding the cable as it winds, and is said to have sufficient capacity to

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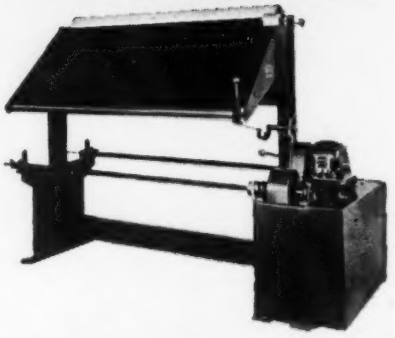

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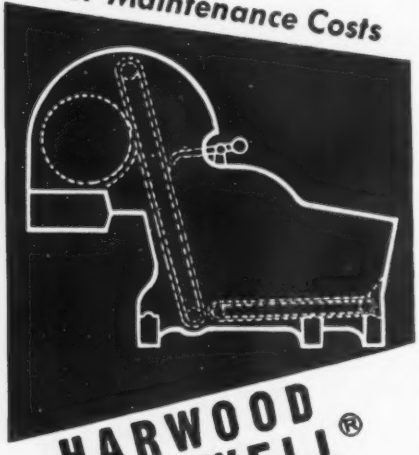

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Notes from the Herrmann Casebook on Successful Management

AFTER WORLD WAR II a well known Eastern mill found itself confronted with an ever increasing work load. It was being swamped with new orders—but labor effectiveness was so lowered during the war that it was impossible to turn out goods on schedule.

THE ANSWER: A Herrmann Staff survey revealed the possibility of increasing production through *work simplification* and a *wage incentive plan.*

Management accepted the proposition, and both were installed together with an up-to-date *cost and production control system.* A *training program* designed to improve management and labor relations and to increase operating performance helped improve the *effectiveness of the mill.*

THE RESULTS: 20% reduction in labor costs and a 30% production increase.

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KADOL is *neutral*—can be used safely on linoleum, cork also wood mastic, tile and many other surfaces, and is recommended as a *general cleaner.* No rinsing is ordinarily required; when a KADOL-cleaned surface is dry-mopped, an attractive polish results.

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Write for the new KADOL booklet which explains its many advantages, and see your DOLGE Service Man.

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The C. B. DOLGE CO.

WESTPORT, CONNECTICUT

provide for full standard lift without overlapping of cable.

The "Silver Queen," said to be the only truck made so that the batteries are used as counterbalance instead of a set counterbalance, was introduced by Moto-Truc Co., 1953 East 59th St., Cleveland 3, Ohio. The over-all length is varied with the capacity from 49½ in. for 2,000 lb. to 65½ in. for 4,000 lb. Weight of the truck is 3,000 lb. The masts on the truck tilt back 80° and forward 4°. In collapsed position, the mast is 66 in. Power requirements are two 250 or 275-amp. batteries, and the truck is said to operate 8 hr. with one charge of the battery for less than 25¢.

An electric stencil-cutting machine made in ½-, ¾-, and 1-in. character sizes was displayed by Marsh Stencil Co., Belleville, Ill. Letters to be cut into oiled stencil board or cardboard are selected by use of a hand wheel. Cutting is accomplished electrically by pressing a small lever. Power is supplied by a ⅛-hp. motor operating on 110-v. current. Current cost is said to be less than 2¢ per hour.

The tremendous interest in materials handling, as manifested in the number and enthusiasm of visitors to the show, leaves no doubt of the desire to reduce costs of non-productive labor engaged in handling. The reduction in costs already made by mechanical-handling equipment was said by many authorities at the show to have prevented the inflation spiral in this country from reaching greater heights than that presently attained.

ACS Members Hear . . .

Why Fabrics Wrinkle. Chemists have discovered why garments wrinkle, according to Dr. Irving J. Gruntfest and D. D. Gagliardi of the Rohm & Haas Co., Philadelphia, speaking at a recent meeting of the Philadelphia Section of the American Chemical Society. Attributing wrinkles in clothing to the "personality" of the individual fibers, the report declared that any fabric's resistance to stretching depends on the fineness of its filaments, the ease with which they are able to move in relation to each other, and their ability to recover from stretching without being permanently deformed. Pointing out that fabrics differ from sheet materials in being woven or knitted from yarns consisting of separate filaments, the report said that partial stretching of the separate filaments is produced by folding no matter how strong the multifilament character of the fabric may be, but chemical treatments can increase wrinkle resistance.

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Mill Maintenance TO KEEP 'EM RUNNING

Be Careful in Mounting Ball Bearings

Mounting ball bearings should be done only with proper tools by an operator who understands how the bearings should be handled. An arbor press should be used, if one is available; but a small hammer and a piece of metal tubing that fits over the shaft on which the bearing is to be mounted is sufficient, according to instructions issued by The Fafnir Bearing Co.

Before the bearing is mounted, the shaft should be carefully checked to make certain that the proper-size bearing has been selected and that the shaft is perfectly straight and clean. If the shaft shows any signs of wear, it should be discarded. The bearing must seat tightly at all points around the shaft; and if the shaft is not perfectly round and straight, the bearing seat will be inadequate, and the operation of the bearing will be unsatisfactory.

If there are any rough spots on the shaft or bearing housing, they should be smoothed off and all filings or emery dust removed. It is a good practice to wipe the shaft with oil just before the bearing is pressed on. The slushing grease in which the bearing manufacturer packed the bearing should not be removed from the bearing. This grease will aid in the smooth installations of the bearing and also act as a lubricant during the breaking-in period.

Three methods of installing the bearing are recommended: (1) arbor press, (2) oil bath, and (3) hammer.

Arbor press. If the shaft on which the bearing is to be installed is short enough to permit easy removal and handling in an arbor press, this method of pressing the bearing into place is recommended. It is easy, quick, and accurate. A sleeve of the same or slightly larger diameter as the inner ring of the bearing should be used to insure uniform pressure on the ring.

Oil bath. If the shaft cannot be conveniently removed or is too long to be handled in an arbor press, an effective method of installing the bearing is to heat an oil bath to approximately 300° F. and immerse the bearing in the bath for 2 min. The hot oil will cause the inner ring to expand sufficiently to permit it to be slipped over the shaft. The bearing should be placed on the shaft immediately upon being removed from the oil bath. As the bearing cools, the inner ring will contract again and grip the shaft firmly.

Hammer. If neither of these two methods can be used conveniently, the bearing can be driven on with light blows of a hammer. This method requires more care than either of the other two methods.

To mount a bearing with a hammer, start the bearing on the shaft by placing the inner ring squarely upon the end of the shaft, placing a metal block across the inner ring, and tapping the block lightly with a hammer. It is important that a metal and not a wooden block be used on the inner ring, since wood may splinter and damage the critical parts of the bearing. It is important also that only light taps with the hammer be made in order to prevent damage to the extremely hard steel of the inner ring.

After the bearing has been started on the shaft, place the end of a piece of metal tubing against the inner ring of the bearing so that the tubing will encompass the shaft as the bearing is driven on. Now place a metal block over the other end of the tubing, and strike the block lightly with a hammer until the bearing is in place.

Check These Causes For Elevator Accidents

Many accidents have occurred on freight elevators, and the majority of them have occurred at the car and shaftway entrance, according to information released by the Div. of Labor Standards, U. S. Dept. of Labor.

The following list of causes of elevator accidents should be checked by every mill that has an elevator:

1. The elevator car is stopped in such a way that the floor of the car is not level with the floor of the building, creating a tripping hazard.
2. The area at the elevator entrance is allowed to become congested, making it difficult to enter or leave.
3. The elevator is started before the shaftway gates are closed, perhaps getting under way before the occupants are prepared and also leaving an unguarded hole in the floor.
4. Shaftway gates are opened by someone to look up and down the shaftway to locate the elevator. This practice has resulted in falls down the shaftway.
5. Persons attempt to get on or off moving elevators.

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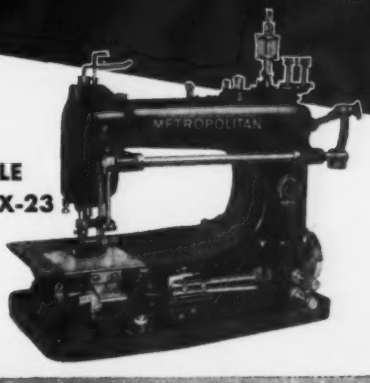

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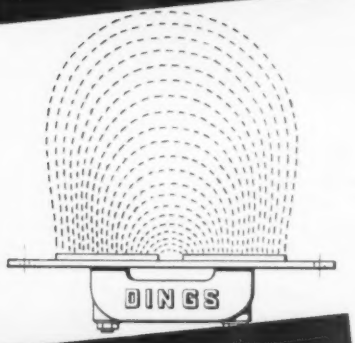

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AATCC PAPERS
Cover New Technology

HIGHLIGHTS: *Reliable dye-solubility determination available—Crease tests show correlation between properties—Pigment emulsions yield good prints.*

Following are the abstracts of technical papers that were presented at the annual meeting of the American Association of Textile Chemists & Colorists.

For brief summaries of the intersectional contest papers see TEXTILE WORLD, November, 1947, starting on page 133. Abstracts of other technical papers in the December, 1947, issue, page 139; the January, 1948, issue, page 139; and the February, 1948, issue, page 147. Each abstract is complete in itself.

Determination of Solubility of Dyes

C. L. ZIMMERMAN and H. R. McCLEARY
Calco Chemical Div., American Cyanamid Co.

The greater use of continuous dyeing methods and changes in the design of dyeing machinery have increased the need for reliable dye-solubility data. In dyeing cotton and viscose rayon in a package machine, the maximum depth of shade which can be obtained depends on the maximum concentration of dye in solution. When padding cotton and viscose rayon with water-soluble dyes, the dye in the pad liquor must be completely in solution or spots and streaks may result. In wool dyeing, the problem of dye solubility is somewhat similar to that encountered in the dyeing of cotton and viscose.

In the padding and dyeing of nylon with water-soluble dyes, concentrated dye solutions are necessary when dark shades are desired because of the relatively low sorption of water by nylon fabric. A padding of nylon with a pick-up even as low as 35% is definitely wet to the touch, and any physical contact removes the dye not actually sorbed by the fabric. This indicates that the optimum pick-up is less than 35%. Hence the heaviest shade obtainable can be ascertained from a knowledge of dye solubility.

In the printing of acid and direct dyes, solutions frequently are made up in very concentrated form (up to 25% solution) and then stirred into the printing paste. If the dye is not soluble, the paste may contain specks and lumps of undissolved dye and may produce undesirable prints.

A method for determining the maximum solubility consists of stirring a known weight of dye in a known volume of water solution for 15 min. at constant temperature. The slurry is then filtered through a jacketed Buchner funnel, maintained at the same temperature, into a flask immersed in a constant temperature bath. An aliquot of the filtrate is diluted quantitatively and the transmission measured on a recording spectrophotometer. Comparison of this spectrophotometric transmission curve with that of a solution of known concentration of the same dye permits the calculation of the dye concentration of the filtrate.

Solutions of some dyestuffs tend to jell or become viscous, especially upon standing. In determining the solubility of dyes by the filtration method described above, some of the saturated solution can be allowed to stand in a constant temperature bath for two or more hours. If the solution jells or settles, the procedure can be repeated with progressively more dilute solutions until no jelling or settling takes place. The dye concentration of this nonjelling solution is then called the solubility, rather than the figure obtained from the filtration test.

Two points which should be noted are: (1) a change in temperature usually produces a change in the solubility of a dye; and (2) the solubilities of dyes may be increased or decreased by the addition of various chemical compounds.

Effect of Crease Resistant Finishes on Stiffness Resiliency

LYMAN FOURT, KATHARINE FISK, FRANCIS W. MINOR, and MILTON HARRIS
Harris Research Laboratories

The customary test for crease resistance, in which a narrow fabric strip is folded and pressed under a weight to form a crease, then suspended on a wire to measure the degree of spontaneous straightening, is useful and rapid, but fails to distinguish between stiffness and resilience. More information for the evaluation of finishes can be obtained by measuring the flexibility and flexural resilience through a series of degrees of folding. This can be done by forming the natural fold of the fabric and measuring the height of this fold through a range of loadings. The original height of the natural fold is one measure of stiffness; the work done in further folding is another; and the ratio of the energy recovered on releasing the fold to the work done in forming it is a measure of resiliency.

Two points have been investigated regarding urea-formaldehyde finish: (1) the effect of variation in resin content; (2) the effect of resin on the relations to degree of folding. The latter was investigated

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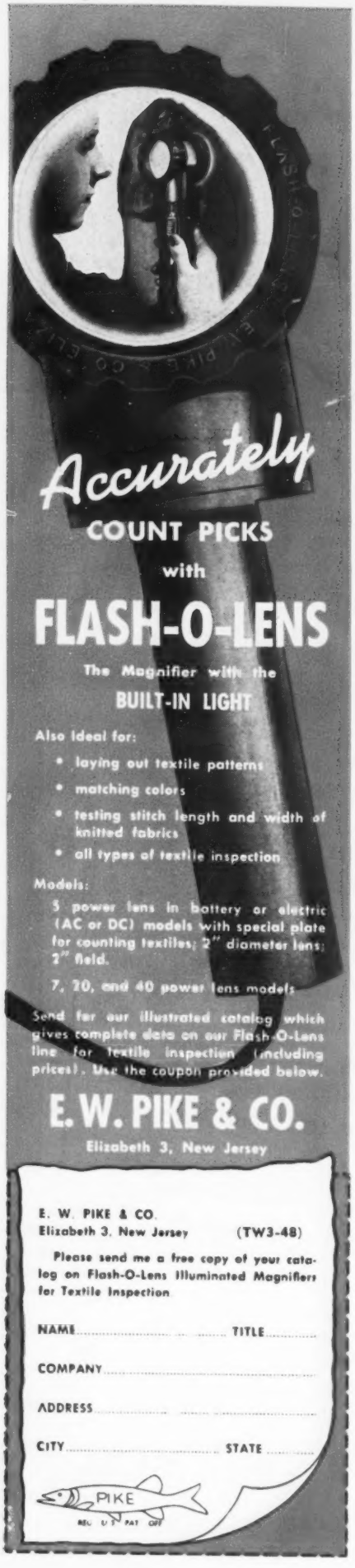
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for the resin treatment with 16.9% add-on, which gave the largest effect as judged by the TBL crease test. The urea-formaldehyde treatment has a quantitative rather than a qualitative effect, in that the data are similar to those for the control fabric, except shifted to higher absolute values of stiffness and recovery. The relative values of recovery as percent of original work or fold height are not greatly changed in this series of fabrics in the range of measurements used.

Results of tests show a correlation between certain properties and the calculated add-ons of resin for filament and staple rayon, respectively. The staple rayon was softer and could be folded to a smaller diameter with a given range of forces, but both sets of data show a positive correlation between work of folding and recovery of form as measured by the crease test. On the other hand, there is little or no correlation with the relative recovery of form or energy in the fold test, at least when conducted as in these tests at the degree of folding corresponding to maximum recovery. It may be inferred that there might be more correlation with relative recovery at still higher degrees of strain, i.e., smaller fold diameters.

By way of orientation, three other finishes were examined, formaldehyde alone; glyoxal, which has recently been proposed as having both crease resistant and shrinkage preventing properties; and the old standby, starch.

Formaldehyde is not usually regarded as a crease-proofing agent, although in certain applications it is used to increase stiffness and alter the properties of cellulose fibers under wet conditions. The treatments tried here were perhaps too mild at any rate, the formaldehyde had, if anything, a softening effect, i.e., a reduction in fold work and in recovered energy.

Glyoxal, however, has increased the fold work, and possibly the relative recovery of energy; certainly the absolute amount recovered.

By contrast, starch acts as a stiffener and increases the fold work; but the relative recovery of energy drops off, even though the absolute recovery increases. The starched specimens showed more pronounced creases than any others.

Pigmented Resin Emulsions for Printing and Pad Dyeing

MAX SILVERMAN
Sherwin-Williams Co.

Water-in-lacquer emulsion systems for printing now generally use a pigmented resin emulsion, a so-called color base and a colorless, transparent emulsion generally referred to as a "clear" or an "extender." The color base is formulated to contain the pigment, resins for binding the pigment, organic liquids which are solvents for the resins and which also regulate the consistency of the paste, and water.

The "clear" or "extender" is an emulsion which contains from 3 to 6% by weight of a concentrate which acts as the emulsifier, from 20 to 25% petroleum solvent, and water. The non-volatile content of this emulsion is very low; and because of this, the extender serves as an excellent medium for reducing the color strength, without adding solids which would cause a considerable increase in the "handle" of the printed textile.

The method of preparing the extender is extremely simple in comparison with usual emulsion technique, and consists in dispersing the concentrate in the petroleum solvent and then adding the water in a fairly rapid stream under vigorous mixing conditions. A half hour is usually sufficient to prepare a 50-gal. batch including the weighing or measuring of the batch ingredients.

The color bases may be blended in any combination. Some pigments are very light-fast both in strong shades and as tints. For a good many pigments, however, the light fastness decreases the lighter the shade is printed; and, in a blend of colors, the colors which are used in very small amounts are, in effect, present as pastel shades which consequently will fade quickly.

In lacquer-in-water emulsion systems for pad dyeing, the pigment is part of the lacquer or disperse phase. The lacquer phase is high in "solids" content; and since the material is thinned with water, there is no fire hazard involved in the use of this emulsion.

The system consists of a concentrated color base, similar in appearance and consistency to a vat-dye paste. The application consists in adding water, concentrated ammonia, and a small quantity of sodium alginate to make a water-thin bath of the desired color strength. The sodium alginate is added as a 0.2% solution in water. Vigorous agitation is not necessary, because the color paste is readily dispersible in water; in fact, agitation is undesirable due to the possibility of creating a heavy foam.

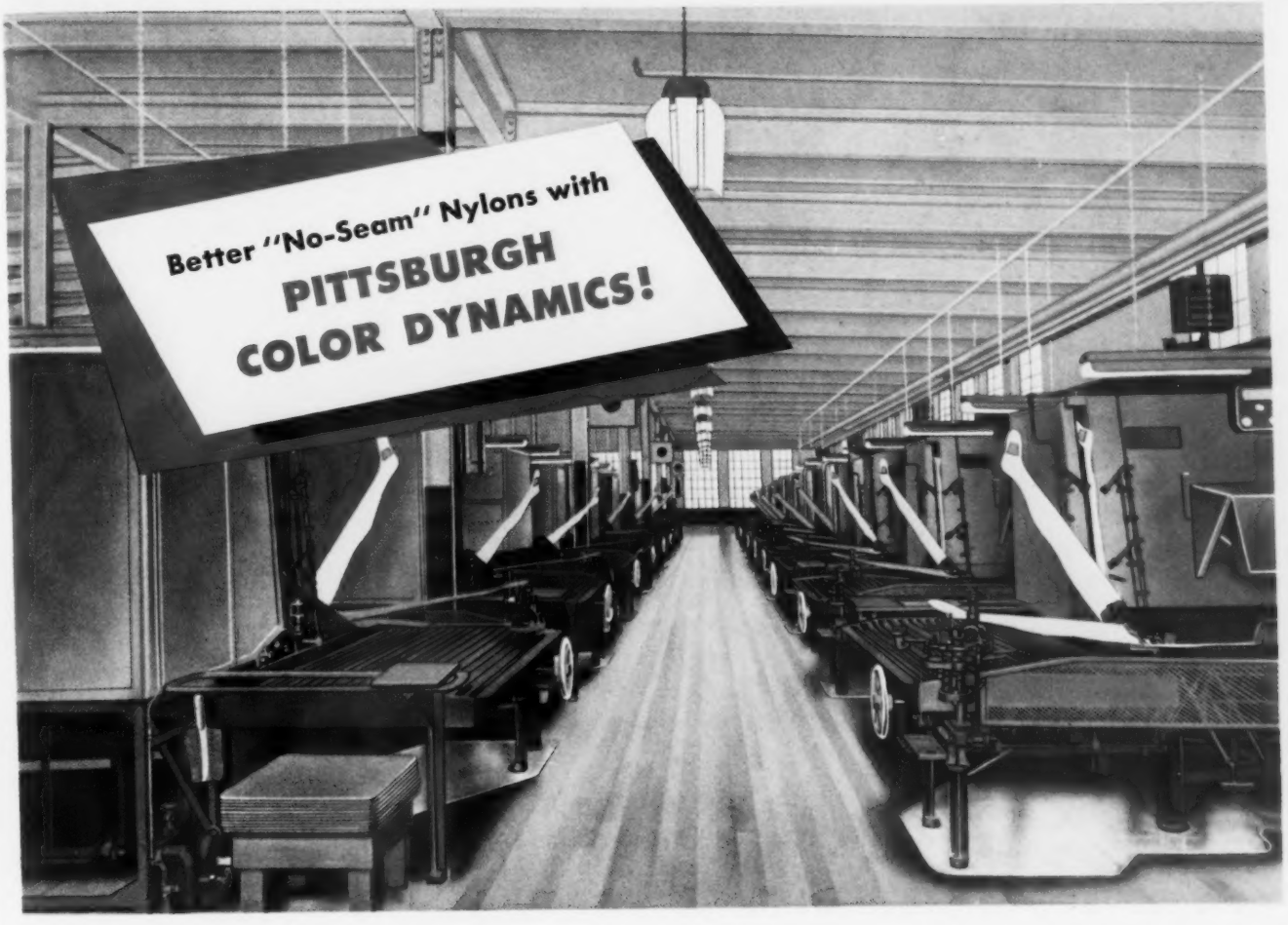
The ammonia stabilizes the emulsion and prevents the pigmented resin from coating or sticking to the rolls of the padder. The bath is kept at room temperature. Excessive heat causes the emulsion to break.

The function of the sodium alginate is to prevent migration, and the amount used must be determined by experiment.

The cloth is run through a two- or three-bowl padder. For light-weight cotton goods, it has been found desirable to dry by immediately running over hot cans after leaving the padder. Whatever the drying system used, it is necessary to have an even application of heat and hot-air pressure; otherwise, the shade will not be the same on both sides of the cloth.

The system depends for its fastness qualities on a heat-setting resin; therefore, curing at 310 to 325° F. for at least 1 min. after the volatile liquids have been removed is necessary.

In general, when properly handled, prints of the water-in-lacquer pigmented resin emulsions and dyeings of the lacquer-in-water emulsions are characterized by good light fastness and good washing properties. They have good resistance to dry cleaning, although there are several colors that do not dry clean. This occurs when the pigment itself is soluble in the dry-cleaning fluid. The well-cured resin film is itself resistant to dry-cleaning solvents.



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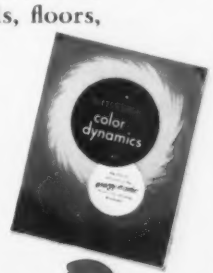

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Barre Will Use "Harriset" For Shrink-Resistant Wool

The Barre Wool Combing Co., Ltd., South Barre, Mass., is extending its present service as comber and top dyer to include the commission processing of top to render it shrink resistant. A research program, both in this country and abroad, covering different methods, resulted in the adoption of Dr. Milton Harris's "Harriset" wet-chlorination method of treating wool top to prevent shrinkage. The outstanding feature of this process is that it is subject to close and accurate control which is said to result in uniformity and proper degree of treatment.

Dr. Harris was closely connected with the shrink-resistant treatment developed by the Quartermaster during the war with which practically all Army wool socks were treated. The work of the Harris Research Laboratories in examination of the best methods of treating wool has been, the company believes, one of the most extensive research projects conducted in the field of wool top shrinkage. Barre Wool Combing Co. has built a commercial installation for carrying into practical operation the methods developed in the laboratory.

The market for shrink-resistant wool goods is believed to be large, as wool shirtings, slacks, socks, sweaters, underwear, and other products will be more sought after when the housewife can wash these garments without the time consuming care and attention that has been necessary in the past. All the natural characteristics of wool are preserved.

Fiber Consumption

(*Continued from page 131*)

Jute and the hard fibers, fibers which are used almost entirely for industrial textiles and cordage, together constituted 8% of the total mill consumption of fibers and 18% of the total quantity of fibers made available for final consumption in

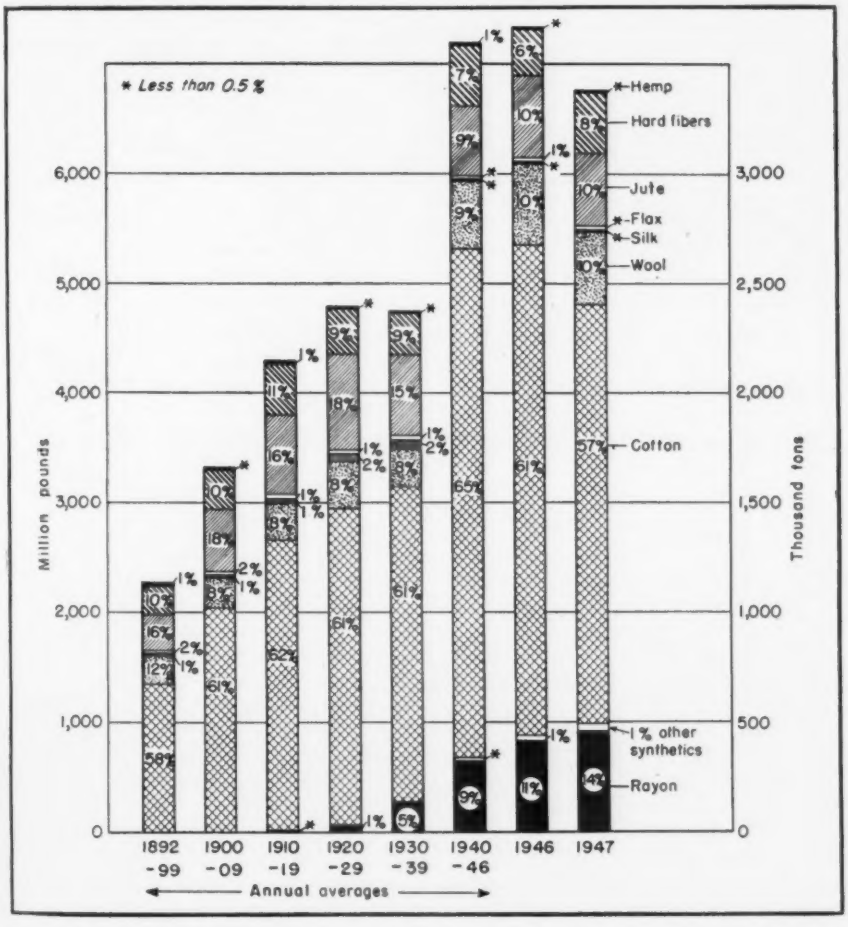

Fig. 2. Absolute and relative quantities of fibers used by final consumers in the U. S. are graphed in six groups of annual averages from 1892 to 1946; also years 1946 and 1947 are given individually.

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It's true: In Texas roses bloom in January.

The equable climate on the Texas Gulf Coast is fine for work and fine for play. And the mild winters can be translated into dollars and cents. It costs less to heat homes and factories, the friendly outdoors puts a bloom in children's cheeks, contentment in the minds of the worker.

A hospitable climate is but one reason why you should build your textile plant on the Texas Gulf Coast. Here are other "brags" that stand up:

- Texas Cotton: 28% of U. S. yield
- Texas Wool: 21% of U. S. yield
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- Natural Gas: 58% of proved natural gas reserve.
- Texas Synthetics: a rapidly expanding production.
- *Plus:* Rail, water, highway and air transportation to all markets, domestic and foreign; intelligent, cooperative labor; an abundance of pure water; a community property law but no state income tax, no sales tax.

Send for a Survey. On request, we will prepare for your company a carefully engineered and confidential survey of the Texas Coast Country individualized to fit your particular problem. No cost, no obligation. Address Research Department, Houston Pipe Line Company, Houston, Texas.

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GEO. A. HILL, JR., President

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1947. After declining during the last war when shipments from India were hazardous, the quantity of jute made available for final consumption climbed in 1946 to 749,000,000 lb., nearly as much as during 1935-39. There was a decline during 1947, however, due at least in part to civil strife in India. The U. S. was totally cut off during the war from two of the principal sources of hard fibers, the Philippines and the Dutch East Indies, and was down to only a 3-month supply when the war ended. In 1947, however, the quantity of hard fibers made available for final consumption was at high levels, relative both to prewar and wartime levels, thanks to increased imports.

PER CAPITA CONSUMPTION. Consumption on a per capita basis of all fibers and of cotton, wool, and rayon, is shown in Fig. 3. It is significant that the quantity of all fibers used annually per person in the U. S., after fluctuating around 40 lb. during the long period between 1905 and 1939, jumped abruptly to more than 55 lb. during 1941-43. Although it was down to 47 lb. in 1947, this was still far larger than the prewar average.

Since fibers are finally used in the form of textiles, it is interesting to note that the quantity of fibers made available for final consumption in the United States in 1947 was sufficient to provide every individual in this country with approximately 38 cotton work-shirts, 6 sq. yd. of men's wear wool suiting, 5 linen handkerchiefs, 39 sq. yd. of rayon pigment taffeta, 0.7 sq. yd. of plastic window screening, 8 burlap bags of 100-lb. capacity, and 14 ft. of 1-in. hard-fiber rope; or their equivalents in other textiles.

EXPORTS AND IMPORTS. A byproduct of this study of fiber consumption trends has been the compilation of data on exports and imports of fiber manufactures. As indicated in the table on page 129, exports of textiles and other fiber products are expected to reach the huge total of 1,005,000,000 lb. in 1947, as compared with 521,000,000 lb. in 1946 and an average of only 148,000,000 lb. per year during 1935-39. Exports are currently a highly important market for the textile output of the United States—exports of cotton manufactures in 1947 were equal in weight to 17% of the mill consumption of raw cotton; exports of rayon and wool manufactures each to 8% of the rayon and wool used; and exports of all fiber manufactures to 14% of the total mill consumption of all fibers. For the first time in recent history, textile exports exceeded textile imports in 1947. Imports of textiles made of cotton, wool, and rayon, are currently small as compared with the total consumption of these

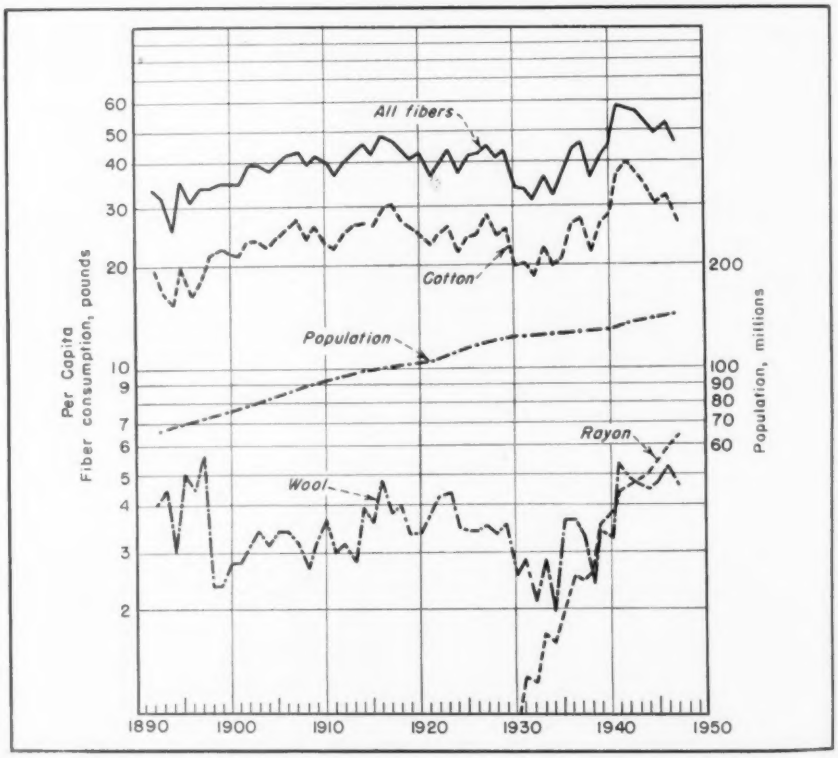

Fig. 3. Per capita consumption in U. S. of cotton, wool, and rayon from 1892 to 1947 shows 40% gain. Population curve is also given. Data is plotted on a ratio scale, in which equal vertical distances show equal percentage changes.

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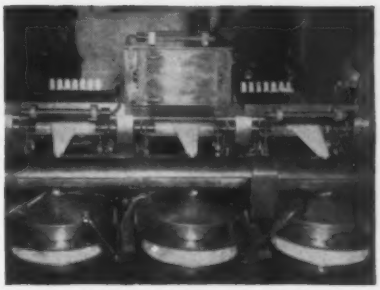

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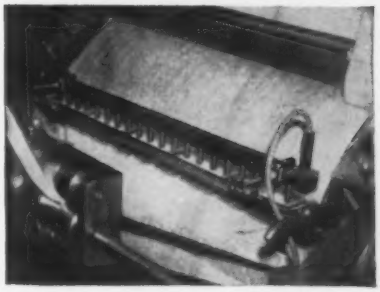
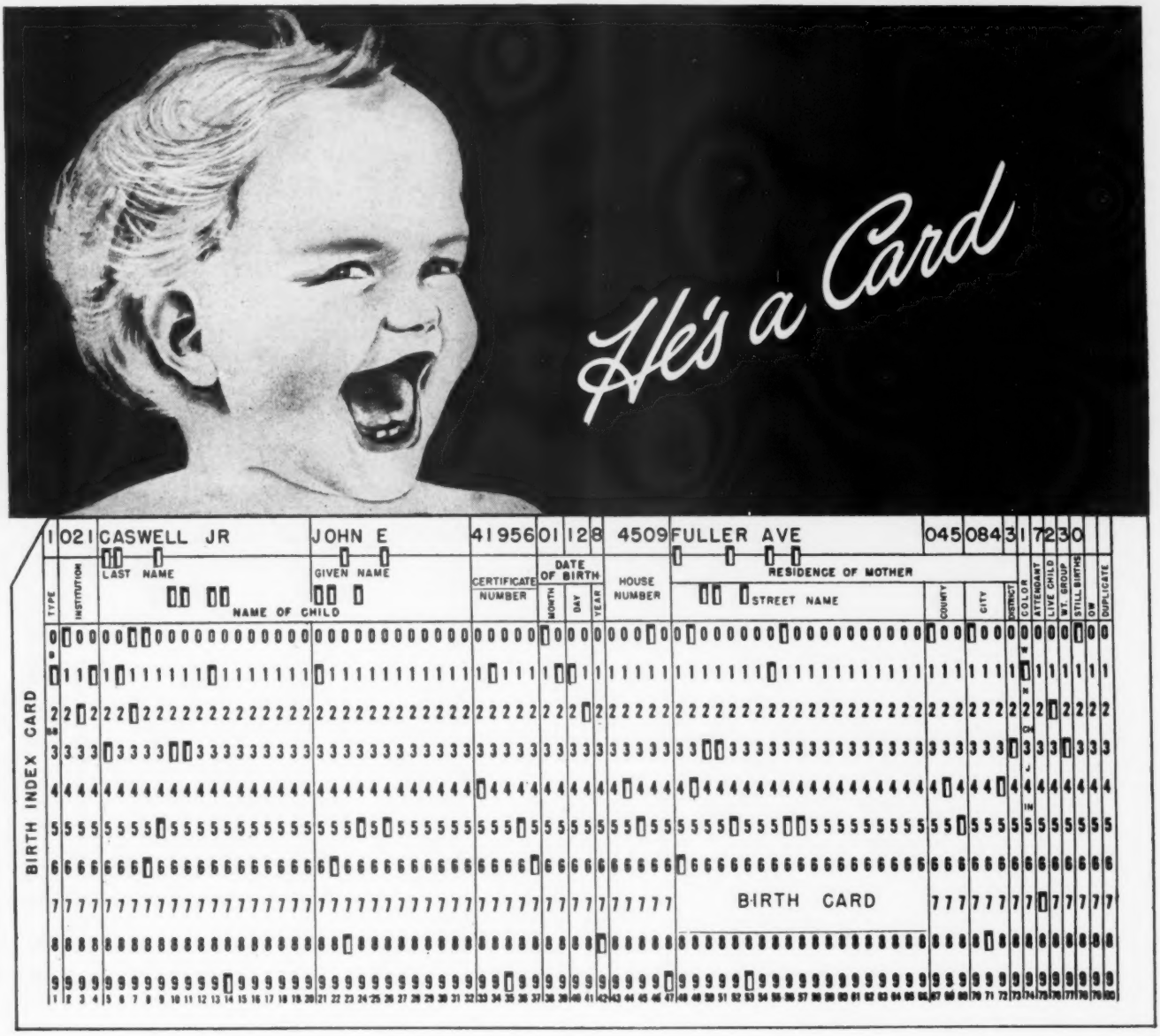


A close-up view of a cotton card fitted with a CHAPMAN Neutralizer.



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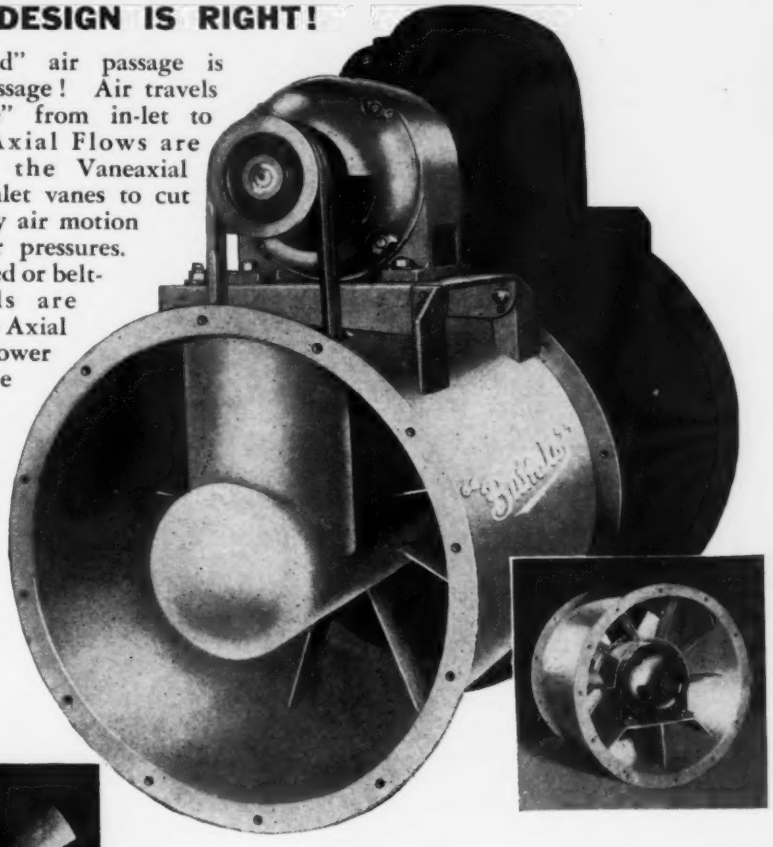

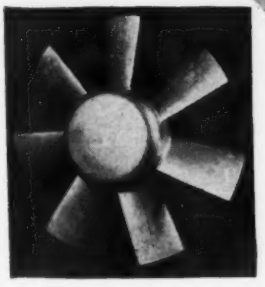

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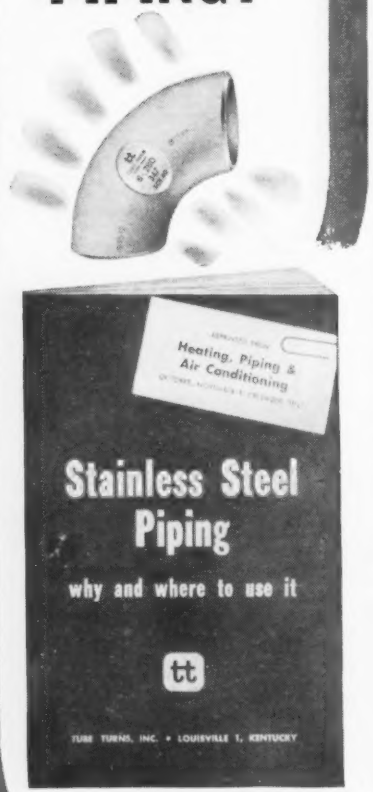

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fibers in the United States, but most of the jute and a sizable percentage of the hard fibers consumed in this country are imported in the form of manufactured goods.

The huge consumption of fibers since 1940 has been during a period of war and postwar reconstruction, when there have been extraordinary demands for textiles. Nevertheless, the quantity of fibers consumed during 1935-39 and in 1940, a comparatively normal peacetime period, was higher—but significantly not much higher—than at any previous time. Consumption of fiber is, of course, intimately connected with the clothing, housing, and industrial equipment needs of the country, and consequently, is highly influenced by such factors as population growth, consumer income, and business prosperity. Considering that the population of the United States in 1948 will be approximately 10% greater than in 1939, and assuming at least moderate prosperity in the years ahead, it can reasonably be expected that fiber consumption totals will continue to be much greater than prewar, even if they do not exceed the record levels reached during 1941-43.

Voluntary Standards

(*Continued from page 127*)

been made large enough, it will have the tendency to "ride under" on the wearer.

All of these fit factors were carefully considered in designing the voluntary minimum stocking construction as specified in the association's specifications. It is the opinion of the Cobert Associates that stockings made to such specifications will prove to fit the average woman correctly as established by tests used in the development of the standards.

NEEDLES SPECIFIED. Because proved fitting quality was included as a qualification in this project, the number of needles used in every part of the stocking is equally important as the courses therein. Therefore, in Table A the number of narrowings, as well as the carrier widenings at the heel pocket, are indicated for each gage and stocking part along with the courses required with each type of yarn.

While the needle width of all constructions at the start (welt) is based on a 14-in. head, it is permissible to drop two needles off each end of the bar. Where this is done, the maximum number of flare narrowings used should be one narrowing less than specified as maximum for the construction concerned.

On knitting machines having needle heads wider than 14 in., the full width may, of course, be used in making the welt. In this case, however, if it is desired to maintain the same finished welt length and stretch, as established for the standard top, the total courses of the welt and afterwelt should be increased and the stitch made correspondingly tighter. The number of flare openings will also have to be increased accordingly to reduce the number of needles at the knee area in order to conform to width standards.

CONSTRUCTION PARTS. In Table A, stocking construction has been divided into four main parts: the standard top, boot, heel-toe-splicing, and toe.

The standard top includes the welt, afterwelt, and the two overlap courses of main yarn.

The boot starts with the first course of main yarn made after the overlap and extends down to the first course of the heel splicing.

The heel-toe-splicing includes the first course of the splicing and extends down to the first course of the toe.

The toe includes the looper loose course, inasmuch as it is the last course of the finished product.

The figures indicated in Table A, under the heel-toe-splicing, can only be applied to the round-heel-type stocking whereas the figures under the other three stocking divisions can be used in making other constructions as well.

The total courses for each type stocking are indicated in the next to the last column, and the construction reference numbers are listed in the last section. They conveniently combine the gage and yarns used in each style.

The same reference numbers are used to identify the detailed knitting specifications for each gage and yarn.

Finished, the standard top was designed to have a 3½-in. welt and a 1-in. afterwelt. The number of courses specified for each top construction was computed to produce a welt having a stretch well within the Du Pont and the U. S. Testing Co. standards. Because this welt type, made on a 14-in. needle head, is most widely made, it is referred to in the Cobert recommendations as standard. Therefore, the courses as specified for this top have been used to complete the stocking totals listed in Table A.

A double welt of less than 3½ in. can be made with the minimum standard boot and foot, provided the afterwelt is lengthened to bring the total

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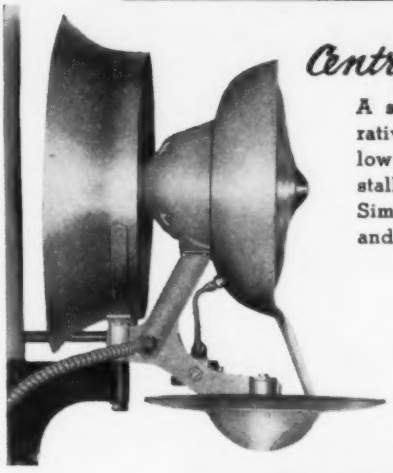

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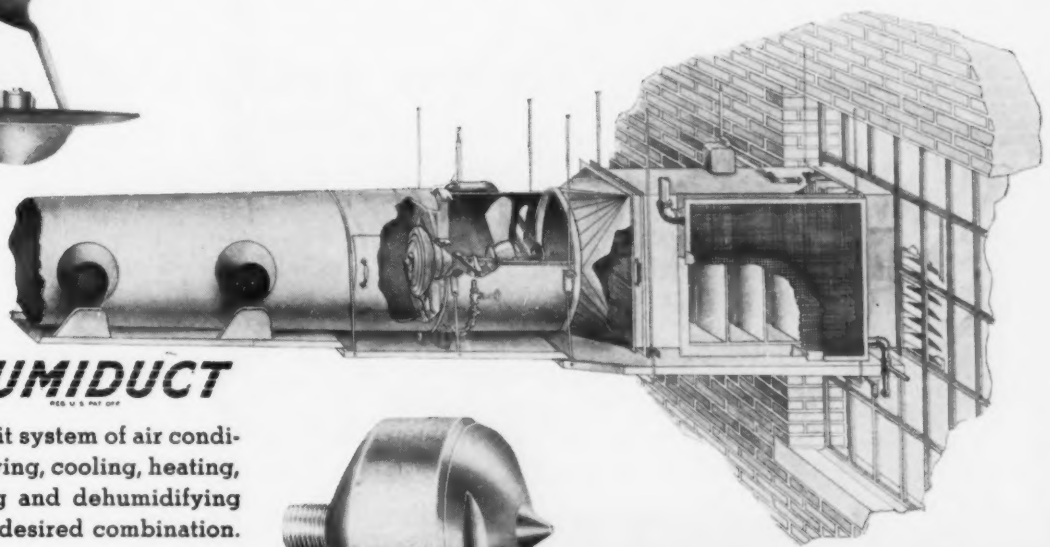

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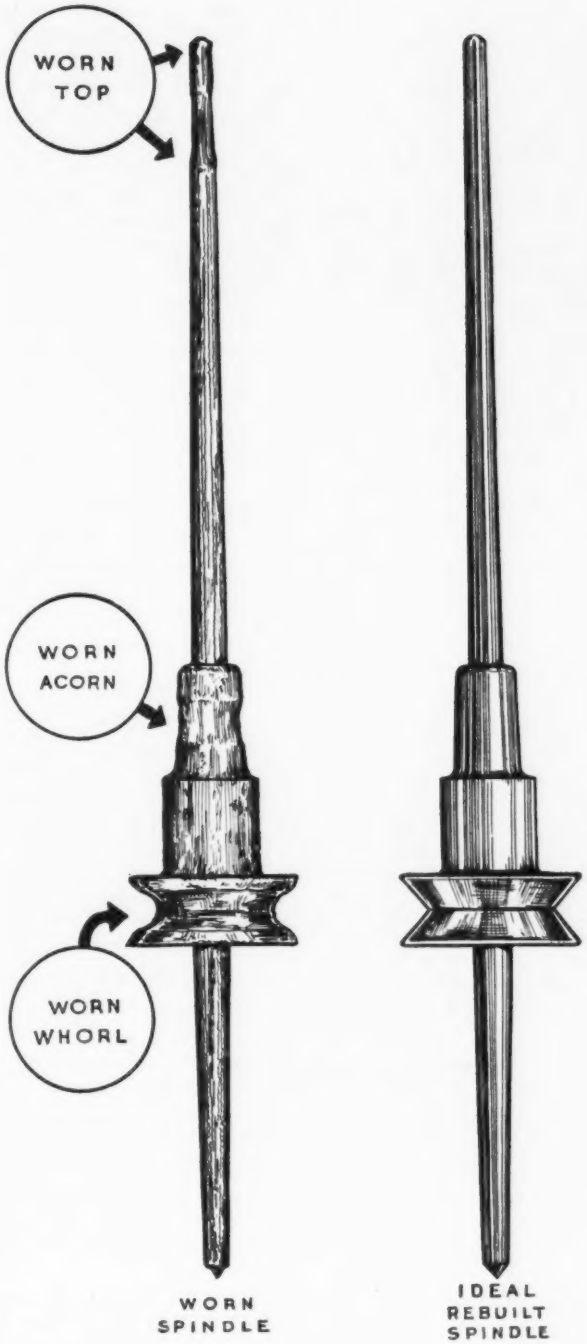

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top to not less than 5 in. in the finished length.

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No finer than 100 den. with 30- or 40-den. boot yarn

No finer than 70 den. with 20-den. boot yarn.

No finer than 60 den. with 15-den. boot yarn.

In such special top constructions, a proportionately lower number of courses than specified under the standard top in Table A are permitted.

LENGTH STANDARDS. While flat measurements and tolerances of the finished stockings are indicated in Table B, they cannot be relied upon to produce satisfactory wearing length and comfortable fitting qualities, unless the stockings have been subjected to a closely controlled manufacturing and processing procedure.

As indicated in Table B, the standard flat length established for this project is 31¼ in. A flat stocking measuring this length will produce wearing length of approximately 26½ in., provided that all length factors are duly considered in its manufacturing and processing. There are many variable factors to consider in the attainment of a uniform product, but most of them are classified under one of three main possible causes of irregularity, as follows:

1. Total courses
2. Stitch size
3. Preboarding and dyed-boarding variables.

For example, even if stockings are made exactly in total courses to conform to a given specification, they could finish much longer than desired because of being too loose in the top, leg, and splicing, or simply because they were pulled down too much in preboarding and, to a lesser extent, in dyed boarding.

All three factors must constantly be kept in mind by the manufacturer who wishes to produce stockings having a fairly uniform wearing length and foot size, regardless of the knitting specifications employed.

A standard method for measuring flat-finished hosiery was established Aug. 15, 1940, by the U. S. Bureau of Standards in its booklet entitled "Hosiery Lengths and Sizes," CS46-40. It was recommended by the Cobert Associates that this standard method of measurement be used in conjunction with the voluntary standards.

The wearing length and foot size of the finished stocking may be determined by testing it on the Universal Hosiery Fitting Measure, or by actual trial on the average woman.

FOOT SIZE. While all the knitting specification charts are based on size 9½ and are designed to produce stockings to finish at a standard length of 31¼ in., other lengths in proportion to foot size may be made as illustrated in Table C.

The standard length may be made in the ordinary range of foot sizes and in the usual manner by simply adding or subtracting the required number of courses per size from the sole, as indicated in each specification chart. The words "per size" means one size only, as from size 9½ to 10. Each size represents ¼ in. of sole fabric; but, on the chart, it is not referred to as a half size, as it is sometimes called.

To make proportionate lengths, add or subtract 2 in. of fabric to or from the stocking before the leg narrowing.

The correct number of courses to use in proportionate lengths is based upon twice the largest number of courses per inch as specified for the main end on the specification chart for each style.

For example, to make a short length in a 45-gage, 30-den. stocking—because the courses per inch for this construction are indicated as from 42 to 43 c.p.i.—subtract 86 courses from the stocking before the leg narrowing.

To keep proportionate lengths separate in all phases of manufacture and in finished stock, identify the leg length in the flare narrowing as follows:

Short: Move the second from the last flare narrowing closer to the third from the last narrowing.

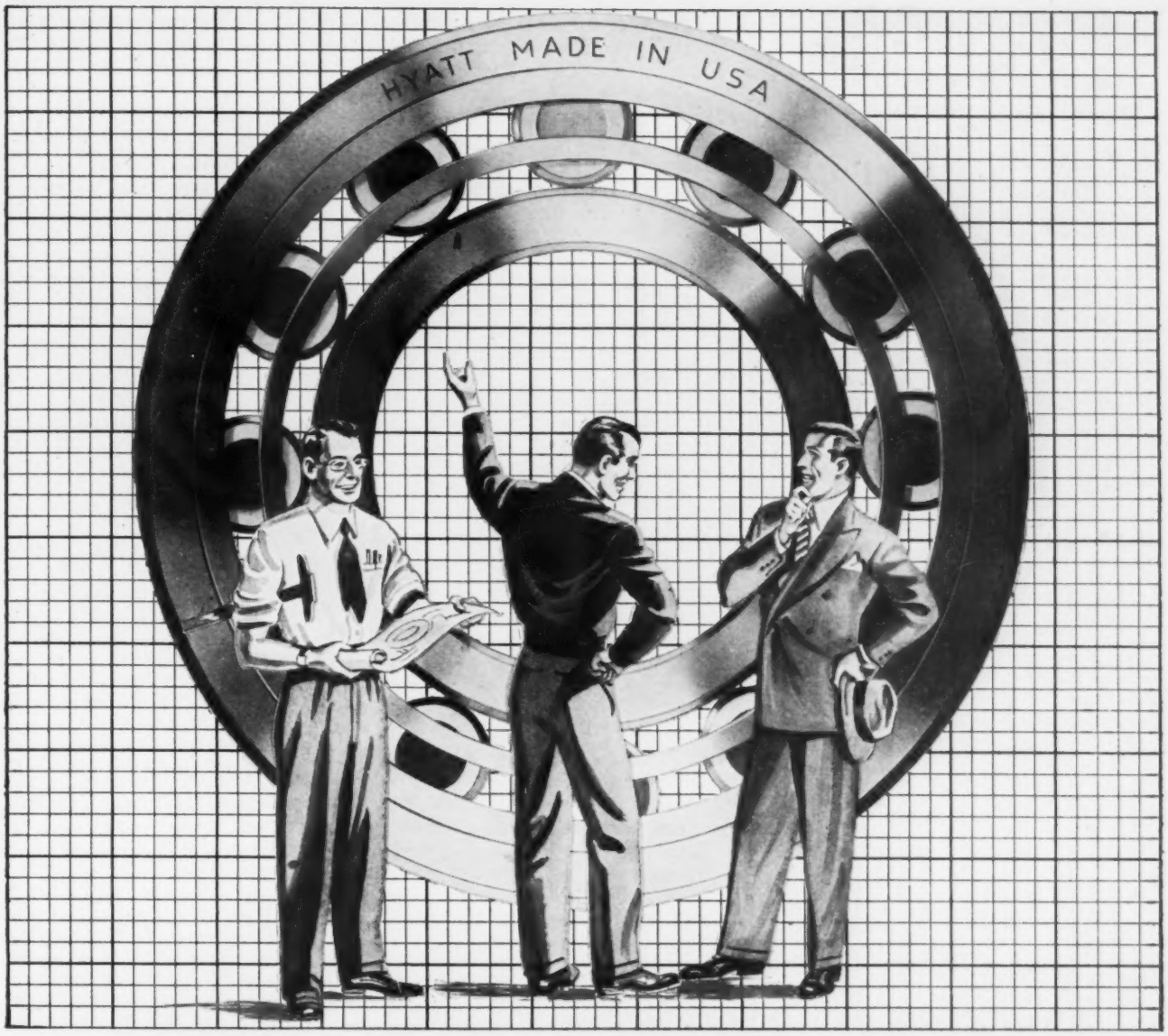
Standard: Keep all flare narrowings equally spaced.

Long: Move the second from the last flare narrowing closer to the last narrowing.

In this manner, and by only moving one flare narrowing button, each leg length may easily be identified at a glance.

The lengths, as proportioned in Table C, provide for a wider assortment of length and foot size combinations. However, if desired, only part of the plan need be adopted. For example, all smaller sizes (8 to 9 inclusive) may be made in the short length, and larger sizes (10 to 11 inclusive) may be made in the long length, which, in this case, only size 9½ would be made in the standard flat length of 31¼ in.

However, depending upon customer reaction and/or orders from buyers, some manufacturers making proportionate lengths will find it also desirable to make a quantity of their production in standard length stock-



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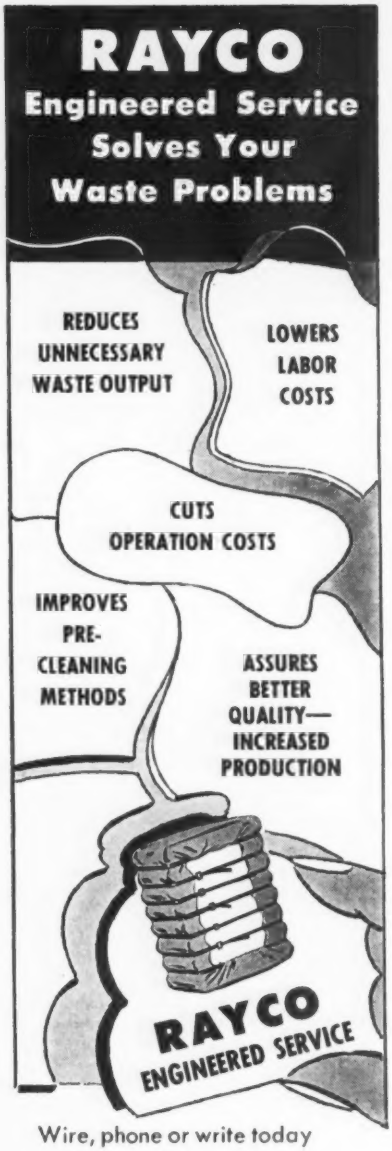

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ings in all regular sizes as indicated in Table C. In this way, a customer with a small foot but a large leg may be fitted with the standard-length stocking without danger of the wearing length being too short due to the expansion of the leg. Stockings made to a standard width as specified will have enough elasticity to fit the stouter-than-average leg, provided they are preboarded under the method prescribed. On the other hand, because they are fashioned on regular-width boards, they will also possess a desirable clinging quality that, within reasonable limits, will prove to fit the slender as well as the stouter leg.

FINISHING PRACTICES. The voluntary minimum full-fashioned nylon stockings-construction-standards project would not be complete without including a standard practice of boarding, particularly preboarding. *The manner in which a stocking is preboarded is equally important as its knitted construction.* As a matter of fact, haphazard preboarding could defeat the purpose of the entire program, especially insofar as fitting quality and wearing length are concerned.

The standard knitting specifications proposed were designed to produce a flat-finished stocking length of approximately 31¼ in. (measured from the bottom of the heel to the picot edge of the welt) and having approximately a 26½-in. wearing length. Evidence that they would meet these requirements was established by tested sample stockings. These samples were all preboarded to a 33-in. line and finally boarded after dyeing to a line at 31¼ in. on forms having the dimensions shown in the next paragraph. The preboarding cycle was 1 min. and 10 sec., at 24 lb. steam pressure, and at a temperature of 250° F.

The forms used were size 9½—foot length 10 in. (measured from the tip of the toe to the back of the heel, with the measuring edge of the ruler meeting the edge of the form at the foot arch). Other dimensions of the forms used for sampling purposes were as follows:

Foot width	3⅛ in.
Instep width	4¾ in.
Ankle width	3 in.
Calf width	5½ in.
Welt width	6¾ in.

Forms having slight variations from these dimensions will not greatly affect the flat over-all or wearing length of stockings, provided a controlled boarding practice, as described, is followed to the letter.

In many preboarding departments, the Cobert Associates have found that each operator pulls the stockings down on the form as far as she thinks they should go. In general, this is more "pull" than should be applied because, since nylon stockings shrink in preboarding, it is not necessary for the unshrunk stocking to fit the form like a glove. In fact, if it does, the stocking is not likely to have enough elasticity after shrinkage, particularly in the foot. Furthermore, unless the heel pocket is properly set in place, so that it covers the ball of the heel on the form as it was fashioned to do, the line of the instep (see drawing of stocking foot) which represents the widest part of the foot, will not be in position over the widest part of the form.

For best results in preboarding, the heel, sole, and toe of a stocking, constructed to minimum standards, should be regulated in stitch size, so that from ½ to 1 in. of toe extends over the tip of the form after the heel has been set as illustrated in the drawing of the stocking foot. This permits the foot fabric to shrink to the contour of the form without disturbing the set position of the heel pocket, thus giving the finished foot excellent fitting qualities and a comfortable elasticity. Marking the preboarding forms at a point 5 in. from the bottom of the heel will greatly aid the operator to set the heel correctly. Heels set to a mark in this manner will also be exceptionally uniform in length, provided the unshrunk foot fits the form as described in the following.

LESS PULL NEEDED. The technique of controlled-length preboarding is in the letting up or flatting on of the stocking, instead of pulling it down to its limit on the form. Lines should be clearly marked on the proper form showing where the picot edge should be drawn in order to produce the desired finished length. In some finishing plants, because of variable conditions such as difference in dimensions between the pre- and finished-boarding forms, or between plants in steam pressure, preboarding time-cycle time, etc., a slight variation from this tolerance is sometimes worth consideration. In the majority of cases, however, the 1¾-in. allowance for shrinkage is very satisfactory. Therefore, the schedule of line boarding as illustrated in Table D can be considered standard practice.

In preboarding, stockings that have been properly regulated in stitch size should have 1 in. more length remaining in the leg fabric after the stocking has reached the established preboarding line. The lighter the denier, the more the stockings should be floated. For example, a 15-den. stocking should have about 2 in. or more length remaining in the leg

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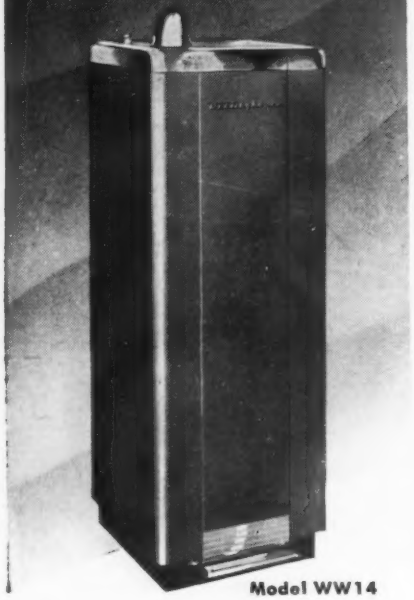

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fabric before it enters the steam chamber. The leg-floating technique also prevents disturbance of the aforementioned heel setting, thus insuring a good fit at this important point of the stocking.

While it is commonly believed that nylon stockings after preboarding cannot be changed in length in dyed (final) boarding, many tests have proved this is not a fact. This supposition is particularly untrue of stockings that have been floated in pre-boarding, as there is much more elasticity remaining in stockings set by this method. A boarding operator giving the wet, dyed stocking a heavy pull can increase its length as much as an inch in comparison to a stocking that is pulled on lightly.

For this reason, and because of the variable pull of the human element, standards have been established for final (dyed) boarding, as well as for preboarding. Furthermore, because the heel pocket is set in preboarding, the operators should be instructed not to pull on the heel of the dyed stocking, but merely place it on to dry.

LINE BOARDING. In some plants, a controversy may arise over the subject of line boarding. It usually concerns the contention that two stockings of a different length may get paired together because, due to boarding to a line, they are the same in the finished flat length. Actually, there is greater danger of this happening where line boarding is not practiced.

For example, in preboarding to a line, when irregularity in knitted goods makes it necessary to pull some stockings and float others to the given line, even though all stockings may look uniform on the forms before entering the steam chamber, they will not be uniform in length after shrinkage. The stockings that had to be pulled down to the line will be shorter than those floated on the forms. After the goods are dyed, the same condition is experienced in finish boarding. Thus, the stocking that is actually tighter will finish shorter in flat length and cannot be paired with the longer, loosely knitted stocking.

On the other hand, where boarding to a line is not practiced, some operators may pull the tightly knitted goods below the given line, and others float the loosely knitted stocking on forms to a point above the given line. In this case, the loose stocking could finish to the same length as the tight one.

Nevertheless, in extreme cases of irregularity in knitted goods, it is not practical for the finishing department to finish board or preboard to a line. Where this situation is encountered, it is up to the knitting department to correct the condition. It is recommended, in such cases, that heads of the knitting department concerned should familiarize themselves with the method of measurement referred to as the "dry board" test.

The term "dry board" means measurement of the gray stocking on a form similar to the one used in preboarding. Stockings should be made so that, after looping and seaming, they easily reach the length indicated. This practice will enable members not having the Rolande system to make regulating and rocker adjustments in an effort to avoid irregular length and foot size. However, all gray measurements, other than the Rolande standards, are only approximate and cannot be relied upon as truly accurate because of variable stretch.

TABLE C

Size	8	8½	9	9½	10	10½	11
Short Length	29¼ in.	29¼ in.	29¼ in.	29¼ in.	.....	.....	.....
Standard Length	.....	31¼ in.	31¼ in.	31¼ in.	31¼ in.	31¼ in.	.....
Long Length	.....	.....	.....	33¼ in.	33¼ in.	33¼ in.	33¼ in.

***Foot sizes** for proportionate-length stockings are based around size 9½ which is 31¼ in. long.*

TABLE D

Length Proportions	Preboarding Line	Finish Boarding Line	Flat Length Desired
Short	31 in.	29¼ in.	29¼ in.
Standard	33 in.	31½ in.	31¼ in.
Long	35 in.	33½ in.	33¼ in.

The boarding line in both pre- and finish boarding does not require pulling the stocking tightly.

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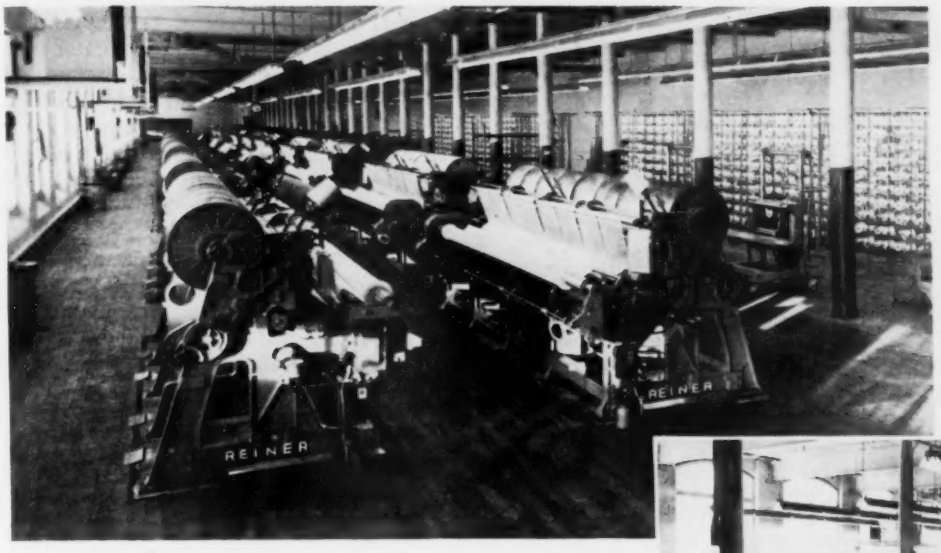

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RAYON YARN CALCULATIONS (140 pages, $1.45); RAYON WARP PREPARATION AND QUILLING (238 pages, $2.90); RAYON LOOMS AND WEAVING (304 pages, $3.45); International Textbook Co., Scranton, Pa.

This compact three-volume library on rayon from yarn through woven fabric comprises Vols. 15, 16, and 17 of International Correspondence Schools' textile series. The volume on yarn calculations covers the manufacturing steps of the principal processes, data on filament and staple, identification methods, characteristics, etc.; also details of numbering systems, twist, strength, equivalent counts, etc.; also mechanical calculations such as data on drives by pulleys, gears, and shafting, etc.

The volume on warping and quilling covers warping operations on the silk system and the cotton system, gives considerable detail on slashing with cotton and rayon slashers and sizes, and concludes with quilling data on Universal Nos 90 and 99 automatic, and the Whitin-Schweiter automatic winders.

The final volume on looms and weaving starts with exhaustive coverage of weaving principles and loom parts, contains separate sections on Draper XD and Crompton & Knowles S-5 rayon looms, and concludes with a section on practical loom operation including drawing-in, adjustments, defects and their causes, cloth inspection, etc.

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Rayon Unlimited!

THE OUTLOOK FOR RAYON; Oscar Kohorn & Co., Ltd., 501 Fifth Ave., New York; 46 pages.

This timely study of the rayon situation concludes with this striking statement: "On the basis of the facts . . . we are forced to conclude that there will be no adequate relief from current rayon-yarn and staple-fiber shortages for the next four or five years." The body of the report presents statistics and quotations of published statements which disclose the present situation and shed light on the trends of near-future years. There is analysis of such items as current domestic production, projected plant expansions, consumption trends, imports, and the world position. The study concludes that current expansion plans are inadequate, that a strong upward trend in rayon consumption will continue, and that imports cannot for at least five years amount to more than a token contribution to the vast American market.

Directory of Textile Brands

TEXTILE BRAND NAMES DICTIONARY, 1947; Textile Book Publishers, Inc., 303 Fifth Ave., New York, N. Y.; 380 pages, $6.00.

An alphabetical listing of more than 4,000 fiber, yarn, and cloth brand names and their trade-marks comprises the main portion of this book. Serial numbers, dates of claim, the product or products which they represent, and the company-owners are given. The period covered is from 1934 to the early part of 1947. In the classified section, the brand names are re-grouped under 12 main headings.

Relation of Textile Fabric and Costume

COSTUME DESIGN, by Kay Hardy; McGraw-Hill Book Co., 330 West 42nd St., New York 18, N. Y.; 276 pages, $5.00.

The chief interest in this book for the textile man lies in its analysis of relation of fabric character to clothing design. There is a glossary of fabric definitions and information on use of color. For the outerwear mill, there is brief mention of work with knitted fabrics.

A Study of the Annual Wage

THE GUARANTEE OF ANNUAL WAGES, by A. D. H. Kaplan; Brookings Institution, Washington 6, D. C.; 270 pages, $3.50.

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Out of experiment at Medley, among many other things, have come such major improvements in the drawing process as the Medley sealed-in ball bearing metallic top roll with permanent lubrication—the quiet helical gear drive. Result? A more uniform, grease-free sliver.

Yes, Mr. Chemist, do your best. Meanwhile, Medley Drawing will go on producing a better sliver from any and all of the fibers in use today. That's why more and more mill operators with problems in production are calling on Medley for the services of trained mechanical and textile engineers. It pays.

Medley has it—or Medley will make it.

***Medley Salutes the Textile Researchers**—in cotton—in wool—in synthetics, for their endless efforts to improve the products and processes in America's great textile industry. In their test tubes are the fibers and the fabrics of tomorrow...each one a challenge to the ingenuity and ability of those who will make the machines to process them. Medley proudly accepts the challenge.*

The MEDLEY System, Inc.

400 32nd ST., COLUMBUS, GEORGIA

Medley Manufacturing Co., Columbus, Ga. • Gastonia Roller, Flyer & Spindle Co., Gastonia, N. C. • Allan Textile Machine Co., Pawtucket, R. I.

MANY A FRONT RUNNER HAS LOOKED LIKE A WINNER...

'TIL THE FINISH LINE!

And many a floor has looked like it would take a beating, 'til it went into service—

but... It's The Results That Count—

And with **Stonhard Resurfacer** you are sure of the results. Applied right over your old floor, **Stonhard** provides a smooth, warm, comfortable working surface . . . long lasting under heavy traffic. Try **Stonhard** on the basis of "Satisfaction or no charge."

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News of the month

ACMA to Meet. American Cotton Manufacturers Association will hold its annual meeting at New Orleans, La., this year. The dates are Apr. 22 to 24, and the convention center is the Hotel Roosevelt.

Machinery Show. The International Textile Machinery & Supplies Exposition, to be held in New York at the 71st Regiment Armory, May 3 to 7, 1948, will be featured by a machinery clinic and forum to be held each day of the show from 2:15 to 4:30 p.m. in the ballroom of the Hotel Vanderbilt, which is across the street from the armory. An advisory board has been set up under the chairmanship of H. R. Mauersberger with the following members: Robert West, of Esmond Mills; Carl Mattmann, of Textron, Inc.; Geo. A. Urlaub, consultant; Dr. Geo. Linton, of Fashion Institute; Carl D. Brown, of Textile Engineering Service; C. L. Mantell, of United Merchants & Manufacturers, Inc.; Fred Noechel, of Botany Mills; August Hafner, of Hafner Associates, Inc.; Ed Wilkinson of National Association of Wool Manufacturers; F. S. Whiteside of Pacific Mills. Mr. Mauersberger is also chairman of the forum.

Trainers Organize. The Carolina Industrial Trainers Association has been organized by textile-training directors, personnel men, and others for the improvement of training and training methods. President is J. Harvey Frick, supervisor of training and safety at Greenwood and Mathews Mills, Greenwood, S. C.; Marvin B. Self, training director, Drayton Mills, Spartanburg, S. C., is vice president; S. C. Thomas, assistant training director and veterans' counselor, Graniteville Co., Graniteville, S. C. is secretary.

Rayon Staple via Charleston. The South Carolina State Ports Authority has announced that 1,000,000 lb. of rayon fiber from Holland and Belgium, consigned to South Carolina textile mills, arrived in the port of Charleston Feb. 9. It was shipped by rail to Abney Mills and Greenwood Mills, both of Greenwood, S. C. The authority termed the shipment as important "new cargo" for the port and said that it was the beginning of a regular flow through Charleston.

Cotton Week. "Cotton—America's Favorite Fabric" will be the theme of National Cotton Week to be observed May 17 to 22.

Started in Philadelphia. The movement in the industry to donate textiles for distribution overseas to destitute Europeans through the American Friends Service Committee was first organized in May, 1947, by the Philadelphia Textile Manufacturers Association, E. K. Pierson, managing director. This movement has spread and found support outside of Philadelphia in ACMA and other textile groups.

Industry Speakers at Lowell. Lowell Textile Institute, Lowell, Mass., has begun a series of weekly assemblies at which representatives of the textile industry and allied fields address the students. Speakers invited thus far include Martin C. Powers, Textile Information Service; Anna Weinstock, Federal Labor Conciliator; R. T. Starr, Columbian Rope Co.; Claudius T. Murchison, Cotton-Textile Institute; Edwin D. Fowle, TEXTILE WORLD; Nathaniel M. Mitchell, Barnes Textile Associates; John V. Smeallie, Mohawk Carpet Co.; N. A. Whiffen, Australian Embassy; and Robert J. Dixson, Chicopee Mfg. Corp.

Textile Calendar

Northern New England Section, AATCC, meetings, Boston, Mass., Mar. 19, 1948; Lowell, Apr. 16, 1948; Andover, May 21, 1948; outing, June 11, 1948.

Textile Operating Executives of Georgia, regular meeting, Georgia Tech, Atlanta, Ga., Mar. 20, 1948.

Hosiery Industry Conference and Annual Meeting of NAHM, Claridge Hotel, Atlantic City, N. J., April 19 and 20, 1948.

International Exposition of Textile Machinery, Equipment & Supplies, 71st Regiment Armory, 34th St. and Park Ave., New York, May 3 to 7, 1948.

Cotton Manufacturers Association of Georgia, annual meeting, Daytona Beach, Fla., May 5 to 7, 1948.

World Trade Week, sponsored by Chamber of Commerce of the U. S., May 16 to 22, 1948.

National Cotton Week, May 17 to 22, 1948.

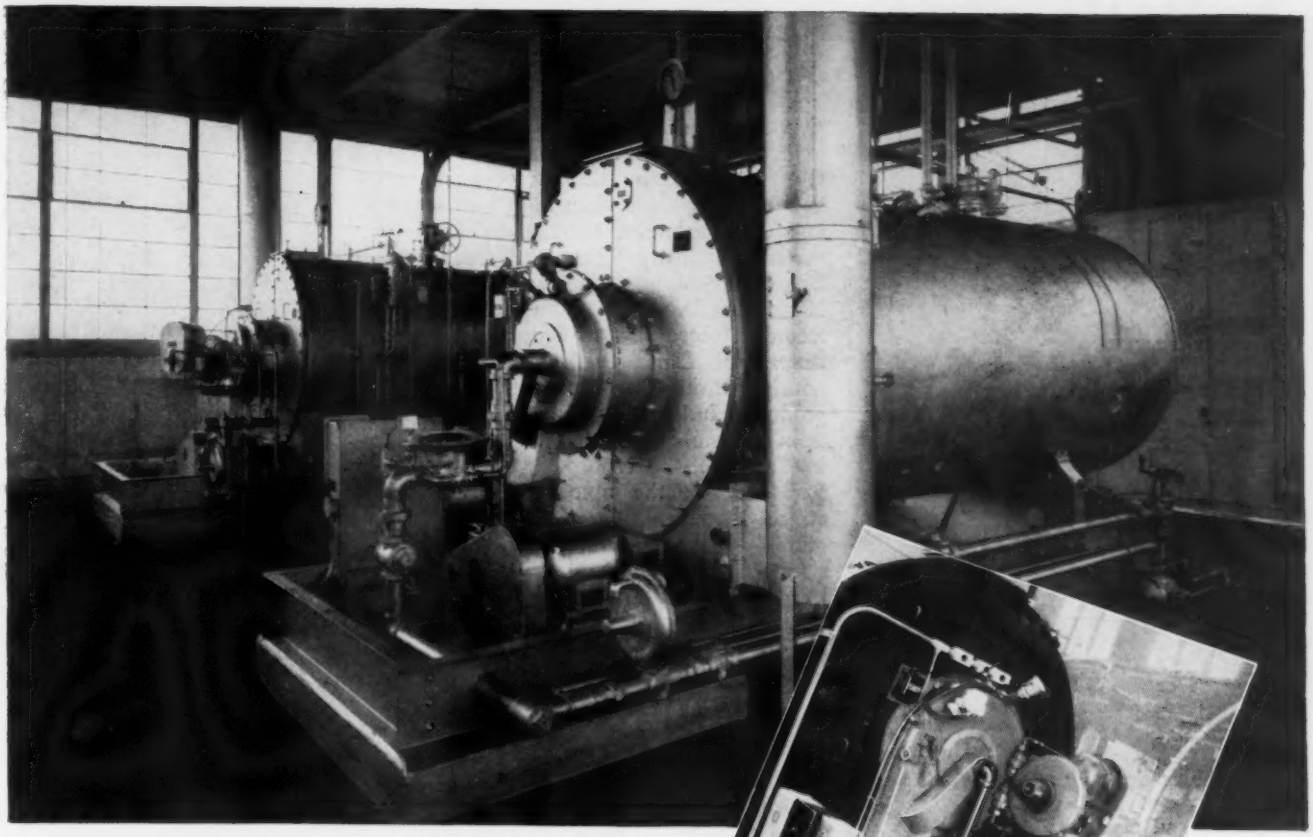
International Textile Industries Exposition, Grand Central Palace, New York, N. Y., June 7 to 12, 1948.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 4 to 9, 1948.

AATCC, annual convention, Augusta, Ga., Oct. 21 to 23, 1948.

BURN GAS — BURN OIL — BURN EITHER

in Steam Generators Expressly Adapted to the Fuel in your Area

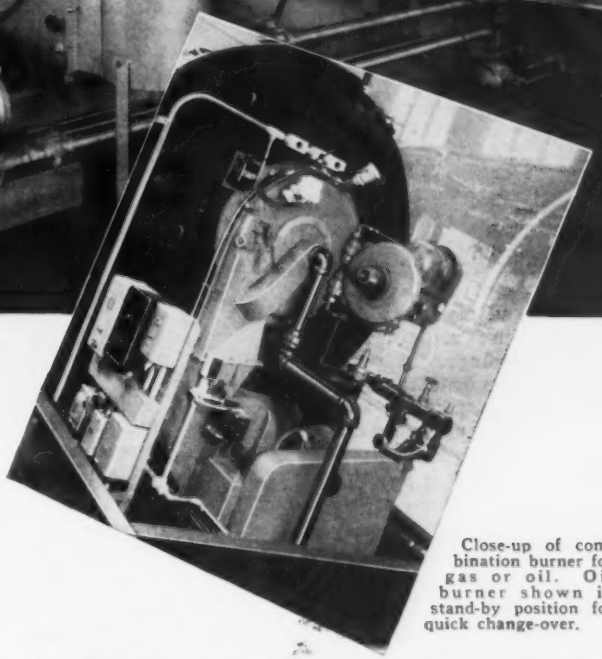


Installation shows two models of 200 HP. Cleaver-Brooks Steam Generators. Foreground model — gas-fired; model shown in rear equipped with a combination burner to burn either gas or oil.

Get Guaranteed 80% Efficiency with either Fuel with a Cleaver-Brooks Steam Generator

INSTALL a steam generator equipped to burn the available fuel in your area—either oil or gas. Cleaver-Brooks offers all three: (1) Oil-fired models, (2) gas-fired models, and (3) models equipped with a combination burner which permits alternate use of gas or oil, providing for a quick change-over from one fuel to the other. Equally important—you get Cleaver-Brooks' guarantee of at least 80% efficiency from full load down to 30% of rating—with either gas or oil as fuel.

And that's not all—more advantages are gained using a Cleaver-Brooks "packaged" steam generator. They give you clean, smokeless operation—eliminate fuel-ash handling—require no high or costly stacks—no special foundations—fit under low headroom—flexible operation to meet fluctuating loads. Fully meet all codes.



Close-up of combination burner for gas or oil. Oil burner shown in stand-by position for quick change-over.

Investigate Cleaver-Brooks Steam Generators—there's a size to fit your needs—15 to 200 p.s.i., 15 to 500 HP.

CLEAVER-BROOKS COMPANY

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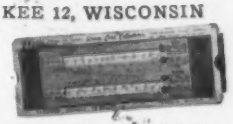

WRITE on your business letterhead for free Steam Cost-Calculator — a ready-reference slide rule showing comparative steam cost when using oil, gas or coal as fuel.

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"Packaged" STEAM GENERATORS

HAVE SERVED INDUSTRY FOR MORE THAN FIFTEEN YEARS

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DRINKING WATER COOLERS

1. Bubbler design gives maximum sanitary protection. 2. Smart, streamlined styling blends harmoniously into all surroundings. 3. Effortless finger-tip pressure produces a steady stream of perfect-temperature drinking water. 4. No spouting, no splashing, no annoying fluctuations in water flow.

User Protected by Temprite's 5-Year Warranty Plan

All models meet requirements of the National Bureau of Standards and Underwriters Laboratories, Inc.

Write for name of distributor in your neighborhood.

Manufacturers of water cooling equipment since 1929.

TEMPRITE PRODUCTS CORP.

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Textile Workers Prosper. Textile workers, whose average hourly earnings have advanced more rapidly than those in any other leading American industry, have increased their savings and purchases far above the national averages, according to figures compiled by the Textile Information Service. Average hourly earnings in textile manufacture have increased twice as fast as the rise in the cost of living and by 14% more than hourly earnings in the lumber-and-timber basic products industry where the second largest rate of wage increases among 20 leading American industries was recorded. According to figures of the Bureau of Labor Statistics, average hourly earnings in the textile mill products industry advanced 129% from September, 1939, to September, 1947, while the cost of living rose 62.8% during the same period. Two typical textile counties in North Carolina, Alamance and Gaston, were selected by TIS for a survey because the majority of workers in both are employed in textile mills. In Alamance, 71.3% of all gainfully employed persons work in mills and in Gaston 81.9%. Motor vehicle registrations in Alamance County rose 17% from 1939 to 1946 and in Gaston County 29%. Total auto registrations in the U. S. according to AAA, increased only 10.8%. Assets of Building & Loan Associations in Gaston County increased 121.1% for the period, compared with an increase of 80% in the total assets of all such associations in the country. Retail sales in Gaston County increased 237% in the 1939-1946 period and in Alamance County 140%, compared with national retail sales gain of 129%. Resources of State commercial banks in the two counties, including two industrial banks in Alamance, showed an increase of 212% compared with an increase of 122% in the total assets of all operating insured commercial state banks in the country.

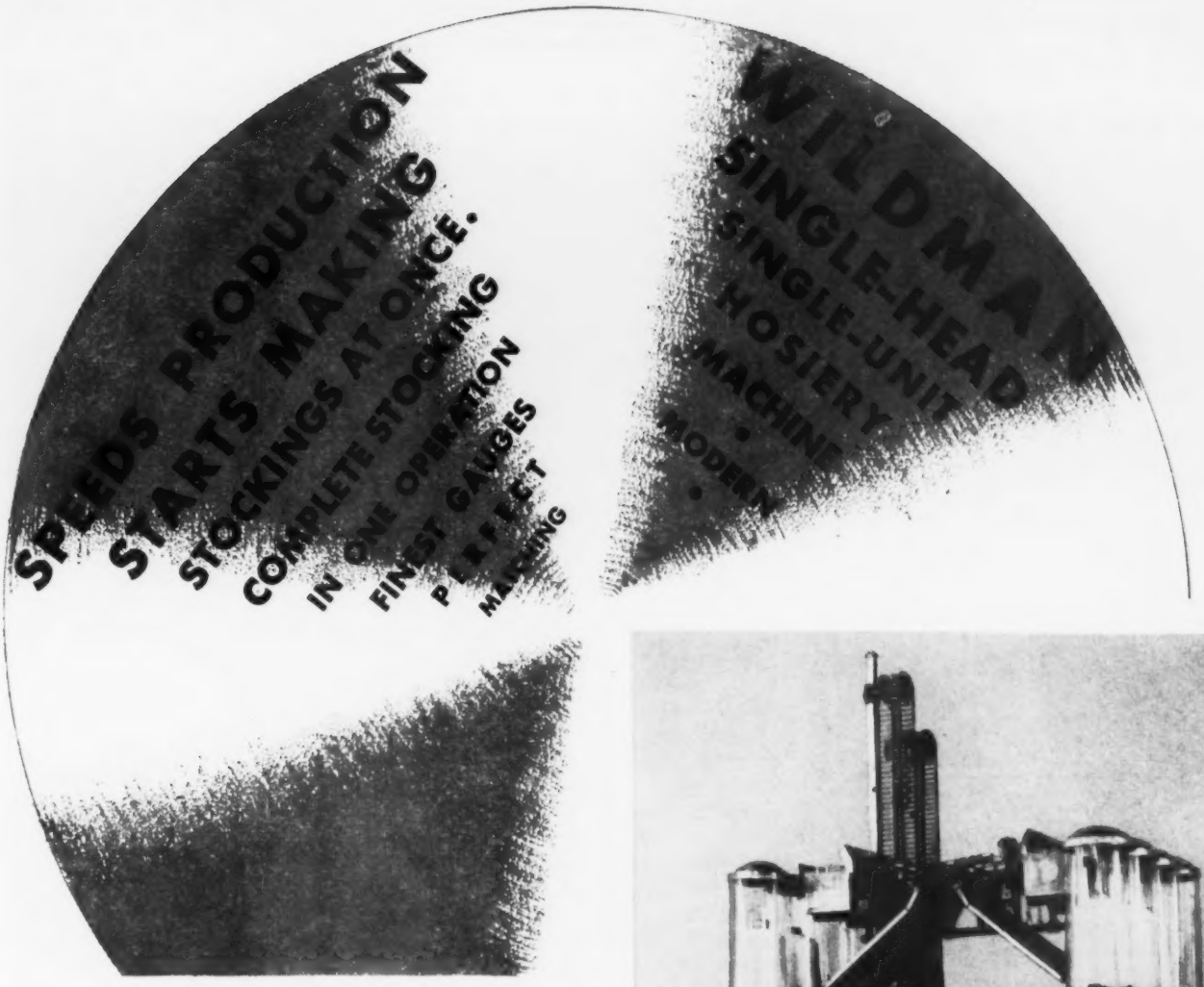
Wool Preparation in Far West. Government and private industry are vying to encourage and establish a Western wool industry. If government does not hurry up, the indications in Denver are that private industry will beat it to the draw. Two private enterprises are moving closer to full wool-processing. Landers Packing Co. of Denver, plans a scouring plant followed perhaps by combing. Rocky Mountain Textile Mills, Inc., is now engaged in its Denver plant in preparing specialty yarns from wool and other fibers. Wyoming authorities are looking for similar enterprises.

"BLENDING OF AVISCO crimped-type rayon with wools for the woolen system is of a decided advantage over the Avisco standard-type fibers because the crimp in the rayon tends to blend much better with the wool on the woolen cards," W. W. Rawlinson, superintendent of the blanket division of Pepperell Mfg. Co., said recently. Pepperell's Glolon blanket is made 50/50 of crimped Avisco staple and wool. Crimped Avisco web is shown above.

A Russian Continuous Process. The Soviet Union's first cord-viscose continuous spinning system has been designed by the Karl Marx textile machinery works in Leningrad, which expects to complete construction of the new plant before April, 1948. An aggregate of several textile machines, system spins finished yarn in 6.2 min.

Asks Tariff Relief on Long-Staple Cotton. The Cotton-Textile Institute has petitioned the United States Tariff Commission for relief from the current extreme shortages of long-staple cotton and has asked for a substantial liberalization of the restrictions in effect on long-staple imports of foreign cotton. The current scarcity of long-staple cotton in the United States, according to the institute, is due for the most part to the unexpected and unusual proportions of staple lengths in the current American cotton crop. Government ginning reports to date, covering approximately 86% of the estimated crop, indicate that staple length yields of 1⅛ in. and over are extraordinarily scarce and far below the estimated requirements of the industry.

Worker Productivity Higher in U. S. Than in Britain. British "working party" committees, sent to the United States to do on-the-job studies comparing American methods with those of Britain, agree that productivity per American worker exceeds that of his British counterpart in each of the in-



Your entire stocking production picture will be decidedly enhanced by putting this Wildman machine in your plant.

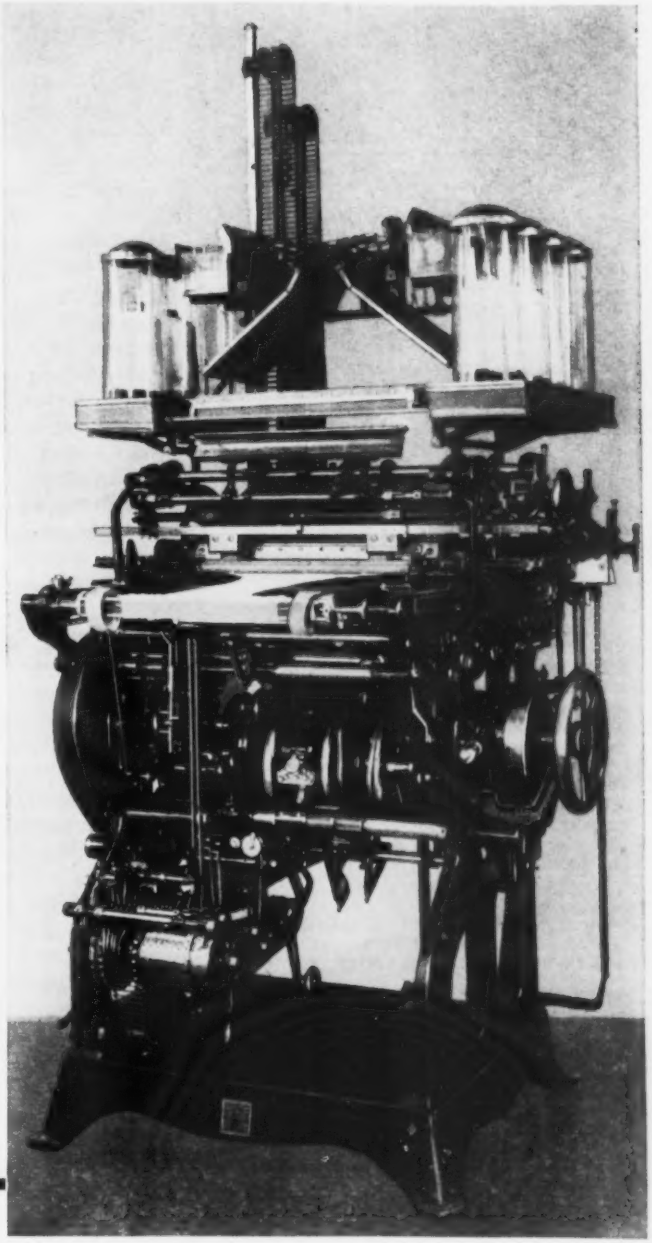
Volume will reach figures that will surprise you.

Quality will be lifted, uniformity assured, perfect matching made easy.

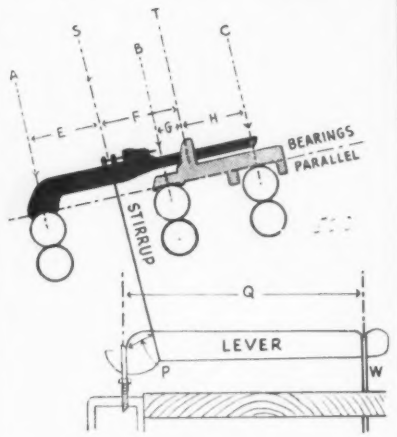
Remember—this machine knits the entire stocking in one operation, perfect from top to toe. And it begins producing three hours after it reaches your plant.

Lots of other good features. May we tell you about them?

WILDMAN MFG. CO., Norristown, Pa.



How to Check Weights on your Spinning Rolls



A, B and C } Pressures on Front, Middle and Back Rolls as shown above

E, F, G, and H } Distances shown measured in inches.

P — The perpendicular distance from stirrup to contact point at top of lever screw. When measuring, be sure rule is held so angle with stirrup is 90°

Q — The distance from contact point at top of lever screw to weight hook

T — The point of contact between saddles, as well as the pressure on the Back Saddle.

S — The point of contact between stirrup and Front Saddle, as well as the pressure on the Front Saddle.

W — The weight on the lever in pounds.

Formulae for Figuring Weight on Rolls:

For Pressure on Front Saddle:	(W)(Q) = S(P)	Solve for S
For Pressure on Front Roll:	(S)(F) = A(E+F)	Solve for A
For Pressure on Back Saddle:	(S)(E) = T(E+F)	Solve for T
For Pressure on Middle Roll:	(T)(H) = B(G+H)	Solve for B
For Pressure on Back Roll:	(T)(G) = C(G+H)	Solve for C

DIXON suggests a careful Check of Weighing on all Rolls

The above weight ratio formulae are designed to help you to a more complete and visual understanding of the many factors affecting good weighting and the proper functions of an ideal saddle assembly. Knowledge of the hows of correct weighting and the application of this knowledge in practice may prevent many a drafting headache

Cut out this diagram and formulae and keep for your future reference or we will send you reprints on request If you encounter weighting problems which these formulae do not solve, send them to us for solution.

DIXON LUBRICATING SADDLE CO.
Established 1876
BRISTOL, RHODE ISLAND, U. S. A.

Sole Manufacturers of
DIXON
LUBRICATING SADDLES

dustries surveyed, according to an analysis of recent "working committee" reports which has just been completed by the National Industrial Conference Board. In the cotton-textile branch as normally staffed, British output per man hour was found to be less than American by approximately 18 to 49% in spinning, 80 to 85% in winding, 79 to 89% in beaming, and 56 to 67% in weaving. For the industry as a whole, the American worker "produced twice as much an hour" as the British worker. Mechanization was considered a large factor in explaining the difference.

Perhaps an American Section of Textile Institute. The Textile Institute, Manchester, Eng., international organization of textile technologists, has under active consideration the formation of a section or sections to serve members and prospective members in North America. Official representative to discuss this subject is John Boulton, research chemist in the Courtaulds organization.

Enzyme for Wool Pulling. Dr. F. G. Lennox and fellow researchers in the Textile Research Laboratory, Industrial Chemistry Div. of the Council for Industrial & Scientific Research, Melbourne, Australia, have been searching for a chemical to aid in wool-pulling which would produce rapid and complete dissolution of the skin tissues, but would not damage the wool or produce objectionable odors. They had in mind particularly removal of wool from scraps of hide. One agent which showed distinct promise on a laboratory scale was papain, an enzyme from pawpaw fruit. But it is too expensive to produce in the quantities required by local fellmongers. However, an enzyme closely approximating papain in effectiveness has been prepared by bacillary action from wheat bran. The bran is moistened with water and subjected to steam for several hours. After cooling to 30° C. the paste is inoculated with spores of a selected strain of the mould *Aspergillus flavus-oryzae* and incubated for several days at 28° C. in a humidity-saturated atmosphere. The culture is then mixed with water and an extract is prepared by filtration. The resultant mould protease extract has proved a highly efficient and relatively inexpensive digester of sheepskin without in the least attacking the wool, which is immersed for 2 hr. at 65° C. and incubated for 24 hr. at 40° C. A. S. Harrison Pty., Ltd., Sydney, is expected to make and market the protease.

FILDOR, a new non-tarnishing metallic thread for knitting, crocheting, and embroidery, has just been put on the market by Freydberg Bros.-Strauss, Inc. The new thread is two-ply, and available in gold, silver, and a copper-and-silver combination.

New Air-Control Bill in S. C. A new bill pertaining to atmospheric conditions in textile mills has been introduced in the South Carolina legislature by Rep. W. Harper Welborn, of Anderson. The new bill is quite different from the so-called "air-conditioning bill" introduced last year. Doubt is expressed that the old bill will ever be brought to a vote. The new bill would require all textile and garment plants in the state to install some form of air change and cleaning equipment to control both temperature and humidity. It would create a part-time board to enforce provisions and to exercise regulatory authority.

Next AATCC Annual in Augusta. The 27th annual convention of the American Association of Textile Chemists & Colorists will be held Oct. 21 to 23 in Augusta, Ga. The tentative program includes three technical sessions, the annual Intersectional prize-paper contest, a general research committee meeting, a dinner honoring corporate and charter members, presentation of the Olney Award, and the annual banquet.

Western AATCC Meets. The February meeting of the Mid-West Section of AATCC was held in Chicago on Feb. 28. A colored sound movie entitled: "Metachrome Dyeing with Metomega Chrome Colors," prepared under the technical direction of Sandoz Chemical Works, Inc., was shown. Leonard Shapiro, research director of Alrose Chemical Co., spoke on "Wool Shrinkage Control."

Piedmont Chemists Meet. AATCC, Piedmont Section held its winter meeting in Greenville, S. C., Feb. 7. Herbert G. Scull, A. M. Tenney Associates, spoke on rayon fabric problems. H. J. Jordan, Jr., of Wiscassett Mills Co., spoke on package dyeing of yarn.

FRIEND OF THE PLANT OWNER... WHO HAS A WET SURFACE MAINTENANCE PROBLEM

The Damp-Tex system of painting kills rust, rot, fungus and bacteria. Stops deterioration. Can be applied on any paintable surface, *wet* or dry, with equal ease and efficiency... changing dingy, rough light-blotter interiors into glistening porcelain-like beauty. One coat covers. Resists acid, alkali, corrosive gases and oxidation. Dries overnight without flavor-tainting odor into waterproof film. Comes in white and colors.

Write for our trial offer.

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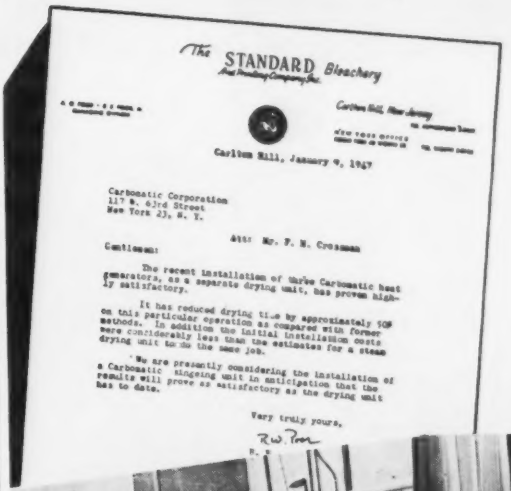


The STANDARD Bleachery

Carlton Hill, January 9, 1947

Carbomatic Corporation
117 E. 63rd Street
New York 21, N. Y.

Attn: Mr. F. H. Crossman

Gentlemen:

The recent installation of three Carbomatic heat generators, as a separate drying unit, has proven highly satisfactory.

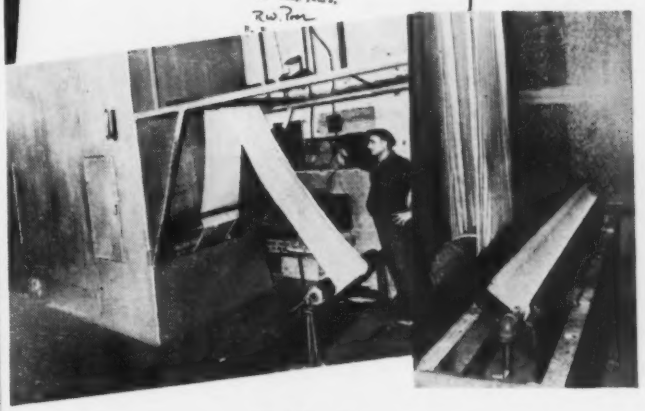
It has reduced drying time by approximately 50% on this particular operation as compared with former methods. In addition the initial installation costs were considerably less than the estimates for a steam drying unit to do the same job.

We are presently considering the installation of a Carbomatic singeing unit in anticipation that the results will prove as satisfactory as the drying unit has to date.

Very truly yours,

R. W. Poor

P. S.



50%

REDUCTION IN DRYING-TIME BY CARBOMATIC INFRA-RED

• By no means unusual is this performance record of the gas-fired Carbomatic Infra-Red radiant heat generators installed in Standard Bleachery's dry-box. Throughout Textile drying, polymerizing, slashing, printing, preheating, and other heat-processing operations, Carbomatic Infra-Red has brought remarkable economies and efficiencies to scores of mills. CARBOMATIC pioneered and perfected the use of modern infra-red equipment in the Textile industries.

Take Carbomatic Infra-Red Singeing Units, for instance. They permit cloth speeds up to 300 to 500 yards per minute, singeing both sides of the fabric at one time—and handling cloth of any weight or width. Rewinding is eliminated. No scorching of the fabric—with subsequent weakening of fibers—is possible.

Write for Bulletin TW-3, discussing Carbomatic gas-fired and electric types of Textile infra-red equipment.

CARBOMATIC

CORPORATION • INFRA RED DIVISION

24-81 47th Street
Long Island City 3, N. Y.

IF IT'S INFRA-RED — BE SURE IT'S

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Canadian Textile Engrs. Ltd.
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E is for Excellence

Exsize is Efficient

Exsize is Economical

Exsize is Easy to Use

Q.E.D.

DESIZE with EXSIZE!

WRITE FOR FREE BOOKLET

PABST SALES COMPANY

CHICAGO, ILLINOIS

Warehouses at Jersey City, and Textile Warehouse Company, Greenville, S. C.

Copr. 1948 Pabst Brewing Company Milwaukee, Wisconsin

NEWS ABOUT Suppliers

H. W. Butterworth & Sons Co., Philadelphia—What a sales engineer needs to know about foundry practices and what a machine designer needs to know about estimating and costs are some of the questions that will be answered in a new plant education program recently begun by this company. At weekly meetings, department heads and their assistants are learning about the building of Butterworth machines, from the pattern shop and foundry to the erection floor.

National Ring Traveler Co., Providence, R. I., has appointed W. Harry King as representative to cover the Georgia-Alabama territory, with headquarters in Atlanta. He will succeed H. B. Askew, recently transferred to Charlotte with the same company.

Proctor & Schwartz, Inc., Philadelphia, has moved its Boston, Mass., reclothing shop and sales office to new and larger quarters at 274 Needham St., Newton Upper Falls, Mass. The building now occupied by the Proctor shop is one that was built by Saco-Lowell in 1921 and used by them for several years. The shop and sales office will continue under the direction of H. R. Zayotti.

Carbomatic Corp., Long Island City, N. Y., has appointed Textile Specialties Co., Greensboro, N. C., as representatives to handle the sales and servicing of Carbomatic products through North Carolina, South Carolina, Virginia, Georgia, and Alabama. Carbomatic's Infra-Red Div. manufactures gas-fired and electric infrared radiant heat equipment for textile heat-processing operations including drying, curing, carbonizing, and singeing.

American Gas Association, New York, will hold its annual sales conference on industrial and commercial gas at Windsor, Ontario, on Apr. 7 to 9. Headquarters will be at Prince Edward Hotel.

Lawrence Machine & Pump Corp., Lawrence, Mass., have purchased the Scribner raw stock dyeing-machine business. The entire machine will be made in the Lawrence plant with Mr. Scribner's cooperation and it will continue to be called the Scribner raw stock dyeing machine.

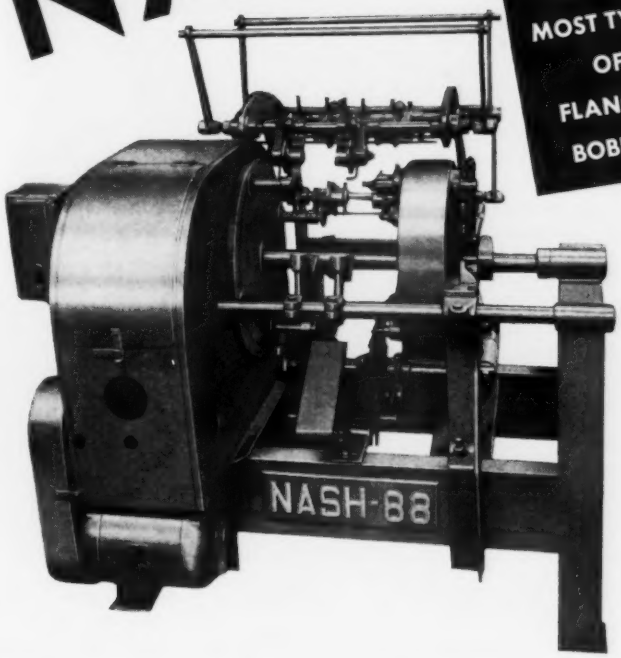
***THOMAS STARMONT** has been appointed development manager of the Duscot Roll Covering Dept. of W. D. Dodenhoff Molded Products Co., Inc., Greenville, S. C. The new company has been formed by the W. D. Dodenhoff Co. It is the first step in an expansion program built around a complete new line of products.*

Solvay Sales Div., Allied Chemical & Dye Corp., New York, has appointed Woodward Allen as manager of the branch office at Charlotte, N. C., covering the Southeastern territory. H. W. Causey is his assistant. Mr. Allen, who succeeds the late Harral O. Pierce, has been with the Solvay organization for 28 years, serving as manager of the Boston office since 1930. M. S. Johnson succeeds Mr. Allen as manager of the Boston office, which serves New England.

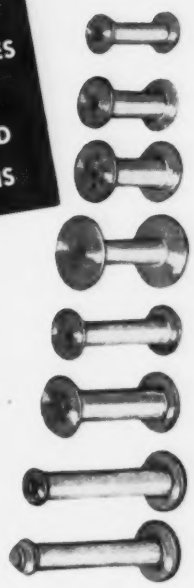
George S. Weinerth Machine Co., Reading, Pa., has appointed Morris Speizman Co., Inc., Charlotte, N. C., as sole distributor south of the Mason & Dixon line, for its line of examining forms, double-sole thread-cutting machines, and other equipment.

Meadows Mfg. Co., East Point, Ga., has appointed Richard B. Rowe, formerly with Fitchburg Grinding Machine Corp. and Grinnell Corp., to be its assistant sales manager.

the New NASH "88" Automatic BOBBIN REFINISHER



HANDLES MOST TYPES OF FLANGED BOBBINS



● Keeps your bobbins in perfect condition. Abrasive action takes place on barrel portion inside of flanges and top radius of flanges. Separate burnishing of flanges produces a highly-polished surface, assuring a better run-off of yarn. This New Nash "88" sands and burnishes *10 bobbins per minute* to a fine finish of uniform quality. Saves labor, requires minimum setup time . . . low maintenance cost. *Pays for itself quickly.* The No. "88" has all the qualities of our larger bobbin refinishers, but is designed for textile mills requiring less capacity.

Write for complete descriptive literature

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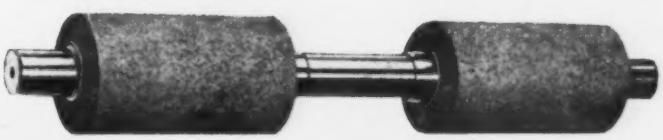
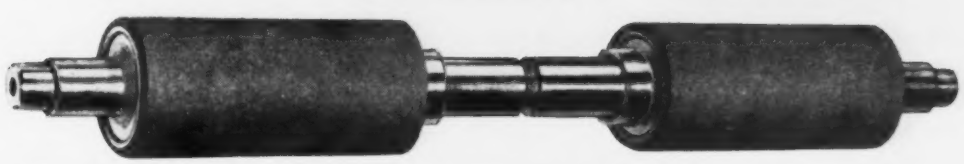
2360 N. 30TH STREET, MILWAUKEE 10, WISCONSIN

SPECIAL FINISHING MACHINES · NASH · SINCE 1890 ·

Climax BALL BEARING TOP ROLLS

FOR SPINNING AND ROVING





• IMPROVE YARN QUALITY • REDUCE ENDS DOWN •
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• GIVE PRECISE AND RELIABLE PERFORMANCE •

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Walton Humidifiers • Watson-Williams Shuttles, Bobbins, Wood Cones & Tubes • Metallic Feeder Aprons • Harness Frames, Heddles & Reeds • Plastic Harness Sheaves • Ball Bearing Tape Tension Idlers • Belting & Harness Strapping • Used Machinery •

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P. O. BOX 1954 CHARLOTTE NORTH CAROLINA

CLIFTON E. WATSON S. P. V. DESMOND

NEWS ABOUT SUPPLIERS

Chas. T. Main, Inc., has added Benjamin S. Malin to its staff. He is a specialist in air conditioning, refrigeration, and ventilation.

Grissette Machine Works, Inc., Gastonia, N. C., has been organized and chartered to manufacture textile machinery parts, etc., under an authorized capital stock of $100,000. The incorporators are: L. B. Hollowell, B. W. Gossett, and Bessie Gossett.

E. I. du Pont de Nemours & Co., Wilmington, Del., Electrochemicals Dept., has appointed Donald O. Notman, who has been director of the Technical Div. to be assistant general manager. He succeeds Samuel G. Baker who became general manager on the retirement of F. S. MacGregor after more than 30 yr. with the company. Dr. E. A. Harding, who has been director of production, becomes director of the Technical Div., succeeding Mr. Notman. Russel L. Hardy, manager of the Niagara Falls, N. Y., plant, becomes director of production, and Dr. N. C. Jones, assistant manager of the plant, succeeds Mr. Hardy.

American Cyanamid Co., Textile Resin Dept., Bound Brook, N. J., has appointed Ralph M. Fischer as manager of technical service. He joined the company in 1939 after a 20-yr. association with United Piece Dye Works, Weidmann Div., where he held the post of superintendent of dyeing.

Calco Chemical Div., of American Cyanamid Co., Bound Brook, N. J., reports that Donald L. Griswold, formerly metropolitan-district sales representative, will take over the management of the Calco Chemical Div., North American Cyanamid, Ltd., Montreal. He has been with Calco since 1937. Cameron Mackenzie has been appointed a sales representative in the New York metropolitan district.

Stanley Sokaloff, New York, has opened a textile-consulting office at 475 Fifth Ave. He was previously with St. George Textile Corp., and teaches an advanced course in fabrics at N. Y. U.'s school of retailing.

Warwick Chemical Co. Div., of Sun Chemical Corp., New York, has appointed J. J. Whitfield as sales manager of the Stearate Div. Mr. Whitfield has been in charge of stearate sales in the metropolitan New York area for a number of years. Warwick Wax Co., Inc., a subsidiary of Sun Chemical Corp., New York, has appointed Maurycy Bloch as sales manager with offices in New York. He was formerly midwestern sales manager. David Auckland is taking Mr. Bloch's position in Chicago.

CLAUDE C. MASON, JR., is head of Claude C. Mason Co., Atlanta, Ga., which has been appointed by Market Forge Co., Everett, Mass., as its regional factory sales representative for the southeastern states. This territory includes Alabama, Arkansas, Georgia, Mississippi, South Carolina, North Carolina, Florida, Louisiana, and Tennessee. Included in the Market Forge line are load-skids, semi-skids and jacks, load-carrier floor trucks, Load-Pac running gear, Load-Mover casters, Load-Lifts, and Load-Veyor conveyor belts. Trading areas in the nine Southeastern states will be covered by the following representatives: Claude C. Mason, Jr. and William J. Hagenboocher, 692 Kennesaw Mountain Ave. N. E., Atlanta, Ga.; William F. McNulty, 1240 Romany Road, Charlotte, N. C.; Sam P. Dixon, 2608 Highland Ave., Birmingham, Ala.; Ed Pickett, Jr., Box 1, Pass Christian, Miss.; P. T. Pinckney, 317 Cotton Exchange Bldg., P. O. Box 1331, Memphis, Tenn.; William H. Nevins, Jr., Box 1331, Memphis, Tenn. Market Forge Co. is appointing stocking distributors in all important industrial centers.

Ben Klein Associates, New York, has been formed as a research organization specializing in the textile, apparel, and related industries with offices at 207 Fourth Ave. Ben Klein until recently headed the research department of John A. Cairns & Co., Inc.

Industrial Rayon Corp. has

Let them decide

TO TRAINS

It's not up to us to get into an argument about low or high hems. All we know is — regardless of how much of their curvaceous legs they are inclined to display — women insist on hosiery with all the superior qualities DuraBeau Finishing puts into it.

Lasting beauty • Superb sheerness • Stress resiliency • Snag resistance
Spot repellency • Satisfaction in every step of "miles more wear"

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Reg. U.S.A. and Canada
TEXTILE FINISHES

SCHOLLER BROS., INC. Mfrs. of Textile Soaps, Softeners, Oils, Finishes • Collins & Westmoreland Sts., Phila. 34, Pa. • St. Catharines, Ont., Can.

WALDRON Processing Machines

For Textile

COATING • TREATING
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COMBINING • FESTOONING
and other processing operations

WALDRON machines are part of the picture of the fascinating new materials that are setting new standards of converting skill. Beauty, utility and durability are being imparted to fabrics with the aid of these modern machines. Investigate the possibilities for your product. Write for detailed information.

1 Waldron 4 Color Engraved Roll Printer.
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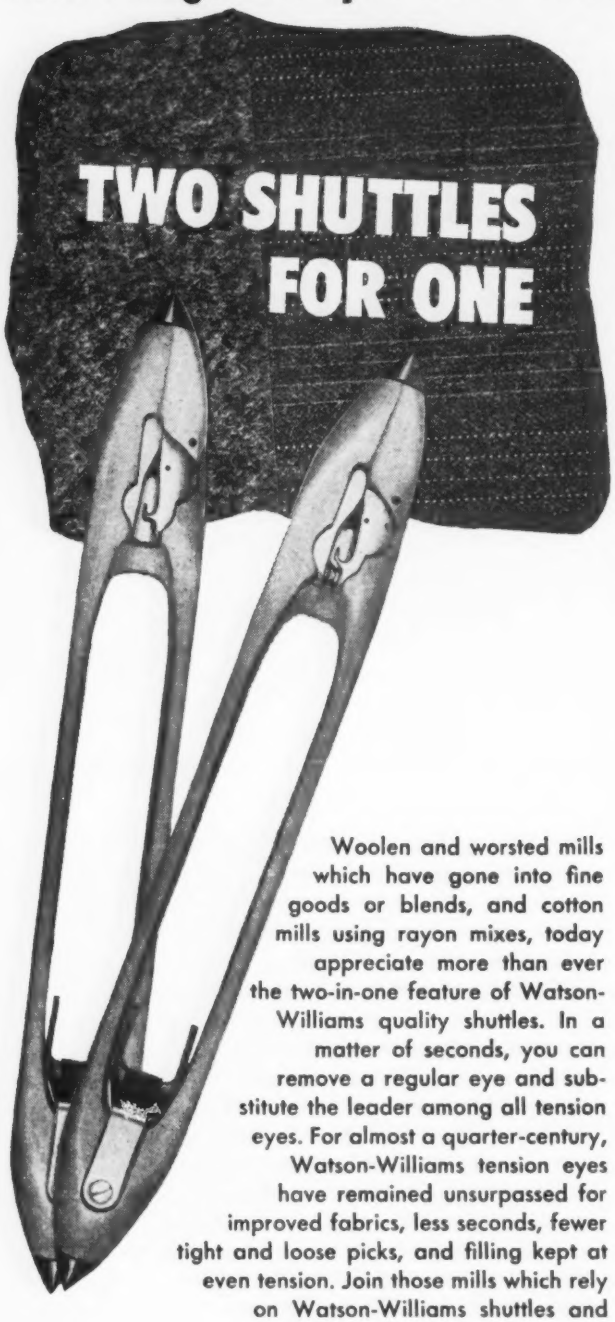
3 Waldron Machine Line for Plastics Treating.
4 Waldron Centennial Embossing Machine.

JOHN WALDRON CORP.
NEW BRUNSWICK, NEW JERSEY
BUILDERS OF QUALITY MACHINES SINCE 1827

Interchangeable Eyes Give You



Woolen and worsted mills which have gone into fine goods or blends, and cotton mills using rayon mixes, today appreciate more than ever the two-in-one feature of Watson-Williams quality shuttles. In a matter of seconds, you can remove a regular eye and substitute the leader among all tension eyes. For almost a quarter-century, Watson-Williams tension eyes have remained unsurpassed for improved fabrics, less seconds, fewer tight and loose picks, and filling kept at even tension. Join those mills which rely on Watson-Williams shuttles and shuttle eyes for better weaving.

WATSON-WILLIAMS MANUFACTURING CO.
MILLBURY, MASS.

SOUTHERN REPRESENTATIVES: Watson and Desmond, Box 1954, Charlotte, N. C., John W. Littlefield, 810 Woodside Bldg., Greenville, S. C., Walter F. Daboll, Jefferson Bldg., Greensboro, N. C. **WESTERN REPRESENTATIVE:** Arthur J. Bahan, P.O. Box 245, La Porte, Indiana. **NORTHERN REPRESENTATIVE:** Guy C. Burbank, 32 Beaconsfield Rd., Worcester 2, Mass.

NEWS ABOUT SUPPLIERS

moved its general and executive offices to 660 Union Commerce Bldg., Cleveland 14, Ohio.

Southern States Equipment Corp., Hampton, Ga., has appointed Matthews Equipment Co., 93-A Broadway, Providence, R. I., as its eastern sales agent, to represent it in New England as well as in New York, New Jersey, Pennsylvania, Ohio, and Maryland. This is the first time that the textile division of Southern States Equipment Co. has been represented in the North and in the East.

American Viscose Corp., New York, has added John Reid, formerly of its export sales division, to the acetate rayon sales division.

Monsanto Chemical Co., Merrimac Div., has appointed Milton J. Scott of Springfield, Mass., as assistant director of research. He has been a research chemist or group leader at Monsanto's Plastics Div. in Springfield since 1942.

Pennsylvania Salt Mfg. Co., Philadelphia, Pa., has placed James McWhirter in charge of fluorine-product-process development and manufacture. Thomas W. Cox has been named assistant secretary of the company to succeed U. Grant Beath, who retired after 47 yr. of service. Mr. Cox will continue as an assistant treasurer. E. G. Warren, formerly a representative of Pennsalt's Heavy Chemicals Div. in the Philadelphia area, has been transferred to the Northern Ohio and Northwestern Pennsylvania territory, and C. Harvey Anderson has been shifted from Chicago to the Wisconsin and Minnesota territory. Pennsalt will build a new fluorine-chemicals plant near Paducah, Ky. The first unit of the plant is expected to be completed by February, 1949. The first phase of the new plant's operation will be production of hydrofluoric acid.

Stearns Magnetic Mfg. Co., Milwaukee, Wis., has appointed Harbert L. Piasecki, office manager, to be assistant treasurer. A. B. Paape has been made assistant secretary.

Allis Chalmers Mfg. Co., Milwaukee, Wis., has elected W. A. Roberts and W. C. Johnson, executive vice presidents, to the board of directors. Mr. Roberts is in charge of the company's tractor division, and Mr. Johnson heads the general-machinery division.

***CHARLES POMEROY COLLINS** has been elected president and a director of Norma-Hoffmann Bearings Corp., Stamford, Conn. He resigned his duties as secretary and general counsel of SKF Industries, Philadelphia, Pa., and assumed his new office Feb. 1.*

Hooker Electrochemical Co., Niagara Falls, N. Y., has promoted John P. Edwards to its sales development department. He will handle technical correspondence with respect to the use and application of Hooker chemicals by all customers.

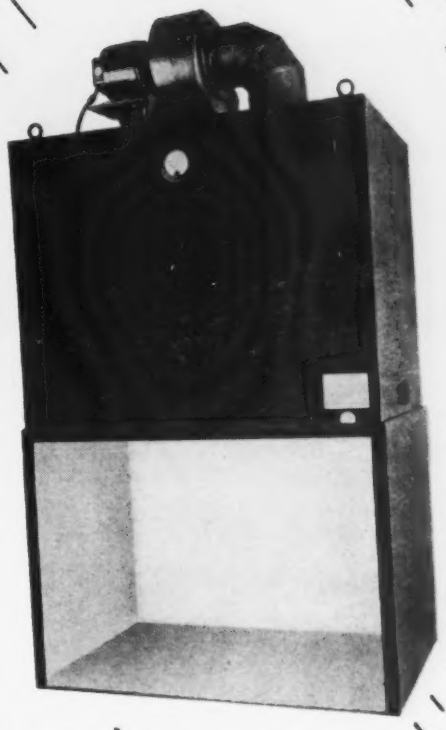
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., has held a traveling sales convention which took officers of the company to both coasts of the United States, as far south as Dallas, and as far north as Toronto, Can. Planned to reach the more than 1,000 field sales personnel of the company, the meetings reviewed sales activities of 1947 and outlined the expanded sales plans for 1948.

Railway Supply & Mfg. Co., Cincinnati, Ohio, has appointed Walter B. Hildebrandt as technical director of Rayco Affiliates, which include Pomona Mfg. Co., Hyde Park Mills, Inc., Charles A. Maish Co., and Lane Cotton Mills Co.

Reynolds Metals Co., Louisville, Ky., has appointed James C. Bjorkholm to the position of advertising manager of the Foil Div. He was formerly advertising copy chief of the Aluminum Div. in Louisville. He will transfer to the Foil Div. headquarters in Richmond, Va.

MACBETH

color matching skylights allow accurate, fast matching on any day, rain or shine



MACBETH CORPORATION
227 West 17th Street New York 11, N. Y.

DON'T MISS THIS GREAT INDUSTRIAL SHOW!!

ATTEND THE SOUTHERN INDUSTRIAL CONFERENCE ON MACHINERY AND METALS

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PLANT TOURS

APRIL 5-6-7-8

The Third Southern Machinery and Metals Exposition brings once more the latest and newest developments in Equipment, Supplies and Machinery to the Industrial South! Executives, Overseers, and plant personnel of the Textile Industry will find this great Exposition geared to their needs! The Annual Southern Machinery and Metals Exposition has become the focal point of contact between manufacturers and Southern industry.

Georgia Tech, in conjunction with Southern technical societies will conduct the "Southern Industrial Conference on Machinery and Metals." The subject matter for discussion will include: Tool Design, Machine Design, Metals, and Production. Conducted Plant Tours through the most modern steel, fabricating and processing plants in the Atlanta area will also be a special feature of the Third Southern Machinery and Metals Exposition.

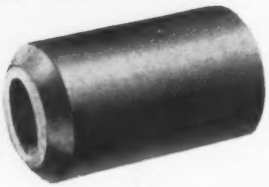
Process control procedures, materials handling equipment in operation, assembly operations, welding demonstrations and machining methods can be seen at this outstanding industrial show of products from all over America. Make YOUR plans to attend! For immediate information, exhibit space, hotel reservations and complimentary admission tickets, write NOW to the Exposition Management, 267 East Paces Ferry Road, N. E., Atlanta 5, Georgia.

THIRD SOUTHERN MACHINERY AND METALS EXPOSITION

ATLANTA MUNICIPAL AUDITORIUM **ATLANTA, GEORGIA**

"DUSCOT"

A REALLY NEW ROLL COVERING MATERIAL



PAT. NO. 2,353,462

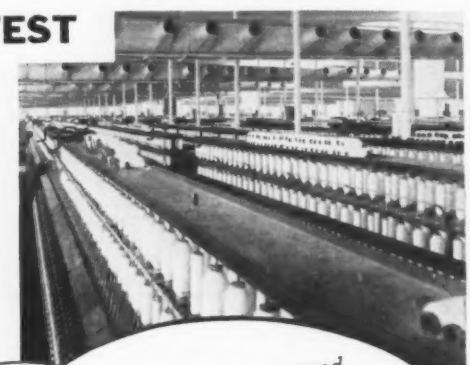
DELIVERS THE GOODS

FROM TEST TUBE

"Duscot" is a completely new and improved roll covering scientifically discovered, developed and tested specifically for the textile industry by one of the largest and leading research laboratories.

TO TEST

A leading Southern mill says:



"This is the best cot we have ever used. Our ends down have been reduced to the extent that we need 2 men less per shift in the Spinning Room and 2 employees less per shift in the Spooling operation. This is due to the fact that the yarn does not show so many breaks and fewer ends are required to be tied."

And another mill writes:

"This is the nearest approach to a perfect cot in synthetics that has been developed."

And a recent random survey showed: That 13 additional mills conducting tests were so pleased with these cots that they were extending their use of "Duscot" to drawing frames and card room frames.

To you DUSCOT means

MORE PRODUCTION AT LESS COST

W. D. DODENHOFF CO., Inc.

GREENVILLE, S. C. MAIN OFFICE

MAYWOOD, N. J. EASTERN DIVISION

NEWS ABOUT SUPPLIERS

SKF Industries, Inc., Philadelphia, has appointed M. H. Courtenay as assistant district manager of its Atlanta office.

General Electric Co., Chemical Dept., Pittsfield, Mass., has appointed Theodore F. Nessler to the newly created position of purchasing manager. For the last 8 yr., Mr. Nessler has been in charge of purchasing supplies for the company.

Bailey Meter Co., Cleveland, Ohio, has opened new branch offices in New Orleans, La., and Schenectady, N. Y.

Carbide & Carbon Chemicals Corp., New York, has opened a new sales office at 1527 Esperson Building, Houston, Tex., with Paul J. Doyle, Jr., in charge.

Westinghouse Electric Corp., Pittsburgh, Pa., has appointed F. D. Weatherholt as assistant industrial sales manager with headquarters at East Pittsburgh. He joined Westinghouse as a member of the graduate student course in 1921.

Truk-Man, Inc., formerly a division of Yard-Man, Inc., Jackson, Mich., has incorporated as a separate and distinct unit to carry on the manufacturing of the Truck-Man model "D", a gasoline-powered hydraulic lift truck, and the Truck-Man utility gasoline-powered platform truck. Yard-Man, Inc., continues as manufacturers of lawn mowers exclusively. Officers of Truck-Man, Inc., are T. B. Funk, president; W. S. Butterfield, secretary and treasurer, and Walter Mayer, general manager.

Arthur D. Little, Inc., Cambridge, Mass., has elected Everett Morss, president of Simplex Wire & Cable Co., to its board of directors. He succeeds as a director Gov. W. Cameron Forbes, who has resigned after 25 yr. on the board.

General Electric Co., Schenectady, N. Y.—A new "More Power to America" program designed to show how increased use of electric-arc welding in industry can reduce manufacturing costs and produce better products has just been released by GE. Showings of the program, which features an all-color sound movie, "Arc Welding at Work," are being given throughout the country by local electric utilities and GE welding distributors.

Detroit Steel Corp., Detroit, Mich., has sold to Reliance Electric & Engineering Co., Cleveland, Ohio, the land and buildings at 1170 Ivanhoe Road, Cleveland, occupied by Detroit Steel for the last 10 yr. as a steel warehouse and distributing plant. The main plant and general offices of Reliance are also on Ivanhoe Road, a short distance from the Detroit Steel property. Detroit Steel Corp. plans a new plant for its Cleveland branch, but will share occupancy of its former premises with Reliance during the transfer period, which may embrace several months.

The Lincoln Electric Co., Cleveland, has appointed G. F. Clipsham as assistant to the president. He joined the company in 1929, and from 1935 until his recent return to the United States, Mr. Clipsham was the president of The Lincoln Electric Co., Welwyn Garden City, Herts, England, which he organized.

Acme Steel Co., Chicago, has moved its New York offices to 11 East 44th St., New York 17, N. Y.

Caterpillar Tractor Co., Peoria, Ill., has appointed W. K. Cox, assistant general sales manager, to be its advertising manager, coincident with the retirement of Gerald M. Walker, who has headed the department since 1931.

TEXTILE MEN AS DIRECTORS

***TEXTILE MEN** are being sought as directors by companies outside the textile field. Two such elections, reported recently, follow:*

John P. Stevens, Jr., president of J. P. Stevens & Co., Inc., has been elected a director of American Brake Shoe Co.

Hugh Comer, president and treasurer of Avondale Mills, Sylacauga, Ala., has been elected to the board of directors of Allis-Chalmers Mfg. Co., Milwaukee, Wis. He replaces John H. Collier, chairman of the board of the Crane Co., Chicago, who resigned because of ill health.

Machine and Hand Knitting

Yarns

[French-Bradford]

for

BATHING SUITS
OUTERWEAR
HOSIERY
UNDERWEAR

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Complete color assortments

American Woolen Company

225 Fourth Avenue New York

DAVIS AND FURBER

Earn a Manufacturing Profit By Using the Best Machinery and Supplies

DUSTERS
PICKERS
CARDS
MULES
WOOLEN SPINNING FRAMES
SPOOLERS
DRESSING FRAMES
NAPPERS
CARD CLOTHING
NAPPER CLOTHING
GARNETT WIRE
LEATHER RUB APRONS
LEATHER CONDENSER TAPES

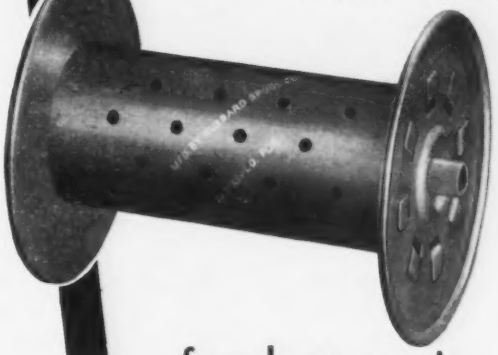
DAVIS & FURBER

NORTH ANDOVER, MASS.

THE ACCEPTED STANDARD

Hubbard stainless steel bobbins

corrosion resistant stainless steel



for low cost efficient operation

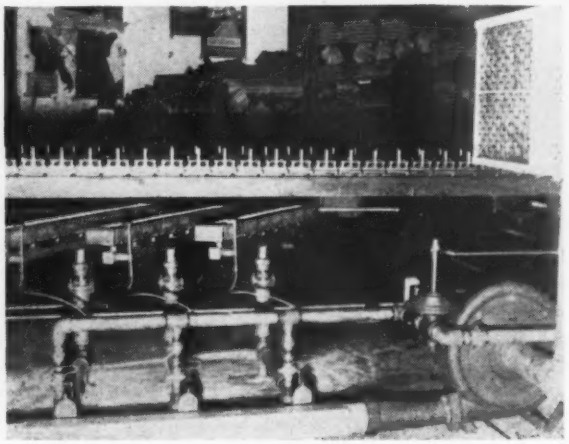
Resistance to corrosion . . . non-absorption of dyes . . . and easy cleaning are the important advantages these Hubbard bobbins give you. Of electro-welded stainless steel construction, these bobbins also provide rigidity and strength to meet all operating requirements. Write for complete information.

HUBBARD SPOOL COMPANY
1626 CARROLL AVENUE
CHICAGO 12, ILLINOIS

STAINLESS STEEL BOBBINS . . . MAGNESIUM
ALLOY WARP BEAMS . . . BEAM HEADS . . .
COMBINATION WOOD AND METAL JUTE BOBBINS

Hubbard

Since 1912 Manufacturers of Spools and Related Products



RED-RAY BURNERS

Red-Ray Radiant Gas Burners installed under open tenter frame. Burners may be turned at angle for narrow goods.

WRITE FOR BULLETINS

RED-RAY MANUFACTURING CO., INC.

455 WEST 45th STREET, NEW YORK 19, N. Y.

For Maintained Shrinkage—
Perfect Finish—Long Life

HUYCK

→COMPRESSIVE SHRINKAGE←

BLANKETS

for use in shrinking fabrics to the *"Sanforized"* standard by the Compressive Shrinkage process, are daily meeting the most exacting requirements of finishers throughout the industry. From the lightest and finest fabric to the heaviest denim, there is a special Huyck blanket to meet your specific needs.

Huyck blankets retain high shrinkage and finish properties to the last.

PALMER BLANKETS—also available for your special requirements.

Write for information
or see our representative

F. C. HUYCK & SONS
KENWOOD MILLS
Albany 1, New York

NEWS ABOUT Mills

Cotton Mill News

Arkwright Mills, Spartanburg, S. C., has begun installation of equipment for new weaving mill on site recently purchased at Camp Croft, near Spartanburg. About 300 looms will be installed in former laundry building at camp and new mill is expected to get into production early next summer.

Bloom Mills, Gastonia, N. C., has organized new corporation, Bloom Mills of Lancaster, Ltd., to operate former Conestoga Cotton Mills, Lancaster, Pa.

Buffalo Mill, Shelby, N. C., including 25 dwellings for employees and 120 acres of land, has been purchased by Jack Dover and Charles Dover, brothers, of Shelby. They have renamed plant **Dover Yarn Mill**, and have applied for charter of incorporation authorizing $250,000 capital.

Calhoun Mills, Calhoun Falls, S. C., plans construction of two-story modern addition, providing 40,000 sq.ft. additional for carding and spinning operations. Plans also call for construction of 25 new homes for employees. Contract for construction of building and homes has been awarded to Daniel Construction Co., Greenville, S. C.

M. M. Clairmont, New York, N. Y., has leased buildings constructed by Puerto Rican Development Society in Puerto Rico. Original plans of society were to equip and operate cotton mill. Clairmont interests will install 12,000 spindles and 350 looms for start and will increase to 18,000 spindles if arrangement works out satisfactorily. Later on, dyeing, bleaching, and finishing equipment will be installed.

D. E. Converse Co., Glendale, S. C., has changed its name to Glendale Mills, Inc.

Cowpens Cotton Mills, Inc., Cowpens, S. C., has been granted charter with incorporators listed as J. M. Perry and W. Francis Marion. F. K. Hayes has been elected president; M. P. Gaines, vice president; and H. R. Wright, secretary and treasurer. New concern recently purchased Cowpens textile properties equipped with 500 looms and nearly 25,000 spindles.

Efird Mfg. Co., Albemarle, N. C., plans construction of additional opening room. A. K. Winget is president.

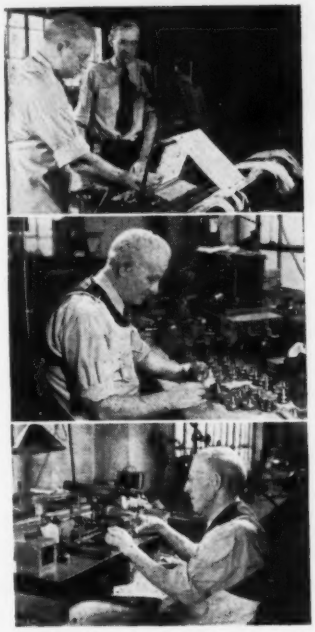
Ely & Walker Dry Goods Co., 1520 Washington St., St. Louis, Mo., is reported planning new cotton mill at San Antonio, Tex., to cost about $250,000, with equipment.

Greenwood Cotton Mill, Greenwood, S. C., and Mathews Mill, heretofore operated as separate organizations, have been merged into one company to be known as Greenwood Mills. Each mill will continue to be known as in the past, and each will have same operating personnel as at present. Approximately 150,000 spindles are included in new set-up. Officers of new combination are J. C. Self, president and treasurer; J. B. Harris, vice president; J. C. Self, Jr., assistant treasurer; L. B. Adams, secretary; and H. W. Brinson, assistant secretary.

Howell Mfg. Co., Cherryville, N. C., is spending $170,000 in expansion program, with 1,000 new spindles to be added to mill. New card room equipment is also being installed.

Huntsville Mfg. Co., Huntsville, Ala., which has had modernization, expansion, and improvement program under way in No. 1 mill, will have this project increased by at least $500,000, to total of about $1,500,000. Increase will provide 120,000 spindles instead of 110,000 and number of looms will be increased to 3,026. More long-draft spinning frames are to be added in April or May. Expenditure of $1,500,000 does not include third wing to mill, which is another major plan being now discussed. Mill is unit of M. Lowenstein & Sons, Inc., New York, N. Y.

40 YEARS OF EXPERIENCE IS BACK OF...



BARBER-COLMAN WARP-TYING MACHINES

REPAIR PARTS AND SERVICE MEN AVAILABLE PROMPTLY

The shop pictures above and below show a few of the skilled mechanics whose experience and aptitudes contribute vitally to the quality and performance of Barber-Colman machines.

No machine made can function without Service. That is why, since the inception of Portable Warp Tying Machines forty years ago, Barber-Colman has backed these machines with two important Service Departments. One is Repair Parts and the other is Service Men. Repair Parts makes, puts in stock, and delivers the pieces and assemblies that wear out from time to time, and need to be replaced quickly to keep the machines operating. Service Men are skilled and experienced individuals, available on short notice from strategically located centers, who are trained to diagnose quickly the ills of any machine, make necessary adjustments or replacements, and revitalize its productive functions. The forty years of experience which backs the performance and visualizes the developments of Barber-Colman Portable Warp Tying Machines could easily be nullified by inadequate Service. That is why, when you use Barber-Colman equipment, you can be sure you have *good* machines that can be kept operating easily at top efficiency.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • DRAWING-IN MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND

NOW

MILTON Light Metal BEAMS

for every application!

STANDARD TRICOT and SPECIAL

CONTINUOUS WELDED CONSTRUCTION

Accurately machined after welding to assure a true-running beam with a smooth, permanent finish.

MILTON LIGHT METAL BEAMS are now made in three popularly accepted standard sizes PLUS special sizes to meet specific operating conditions.

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SPECIALIZING IN THE TEXTILE MACHINERY FIELD

MILTON MACHINE WORKS

DESIGNERS . . . ENGINEERS . . . MANUFACTURERS

MILTON, PENNA.

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FOR EVERY TEXTILE APPLICATION

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MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

• PROCESSING METHODS
• PLANT LAYOUTS
• MATERIALS HANDLING
• MANUFACTURING CONDITIONS
CONTROLS FOR
• MACHINES SUPPLIES
WASTE QUALITY
• MAINTENANCE
• ADMINISTRATIVE ROUTINES

WERNERTEX P. O. M. CO.

60 E. 42nd ST., NEW YORK, N. Y.

Consultants to the Textile Industry

Kalmai Braids, Inc., expects to begin operations around Mar. 1, in new two-story building now nearing completion at Kalmai, near Spruce Pine, N. C. Firm will manufacture shoe laces and cotton handkerchiefs. J. P. Grindstaff is president; William Davenport, vice president; and Mrs. Thomas Hudson, secretary-treasurer.

Lola Mills, Inc., Stanley, N. C., has been purchased by Carter Fabrics Corp., subsidiary of J. P. Stevens & Co., New York, N. Y.

Lydia Cotton Mills, Clinton, S. C., has awarded contract to Peden Construction Co., Greenville, S. C., for laying sewer line and construction of disposal plant, at cost of $85,000.

Marshall Mfg. & Processing Corp., Charlotte, N. C., unit of Leading Embroidery Co., North Bergen, N. J., will begin operations in May. About 200 operatives will be employed in manufacture of tobacco cloth. About 15,000 spindles and 300 looms will be installed. Air-conditioning equipment and fluorescent lighting are slated for both plants.

Moultrie Cotton Mills, Moultrie, Ga., is asking bids for new addition to weave shed, with part of structure for shipping service. Robert & Co., Atlanta, Ga., is architect and engineer.

Paola Mfg. Co., Gaffney, S. C., is occupying former Irene Mills building. Plant is equipped with 15,000 spindles and 300 looms.

Pendleton Mfg. Co., La-France, S. C., formed by merger of Blue Ridge Yarn Mills and Pendleton Mfg. Co., has been chartered, and company will operate under capital stock of $200,000. Richard N. Tandler is president.

Profile Cotton Mills, Jacksonville, Ala., plans to add more than 7,000 spindles as soon as machinery is available.

Scranton Lace Co., Scranton, Pa., has purchased United States Lace Mills, Kingston, N. Y., and will operate.

Shelby Cotton Mills, Shelby, N. C., has awarded contract to Barger Construction Co., Mooresville, N. C., to build addition to mills. Plans call for warehouse and opening room on west side of mill, plus rearrangement of machinery in present plant.

Springs Cotton Mills, Lancaster, S. C., will begin an addition to plant at Kershaw, S. C., to cost $500,000. Building will be one-story, of brick construction, and will contain additional spinning machinery and looms.

Textron Puerto Rico, Puerto Rico, W. I., will have 25,000 spindles and 520 Draper looms to weave 40-in. print cloths. It will not be taken over by Textron management until it is completely setup and ready to run. Machinery is scheduled for shipment for third and fourth quarters of 1948.

Wabasso Cotton Co., Ltd., Three Rivers, Que., has recently awarded contract for erection of addition to plant. Cost, about $100,000.

White-Tex Mills, Inc., Raeford, N. C., will begin expansion program that will include addition of more than 8,000 sq. ft. of manufacturing space, 3,500 spindles, and 12 cards.

Verney-Shawmut Mill, Fall River, Mass., which was purchased by Jacob Ziskind, has now been sold to Richard Borden Mills Corp., and will be operated as weaving mill. Additional equipment, including 520 automatic looms, new warping, slashing, and inspection machinery, is to be installed. Plant has 27,000 ring spindles.

Wool Mill News

Johnston Woolen Mills, Ltd., Waterville, Que., closed for past 13 months, has been taken over by Avin Mills, Granby, Que., and will be operated along with parent plant.

Stillwater Worsted Mills, Inc., Harrisville, R. I., has let contract to Arthur M. Vick, Providence, R. I., for one-story, 30x56 ft. addition to mill at Washington, R. I.

Texas, Inc., San Marcos, Tex., located on site of former Bluebonnet Blanket Mill, is expected to get into production next month. At beginning of operations, plans call for scouring wool; however, firm later plans to process wool beyond this stage.

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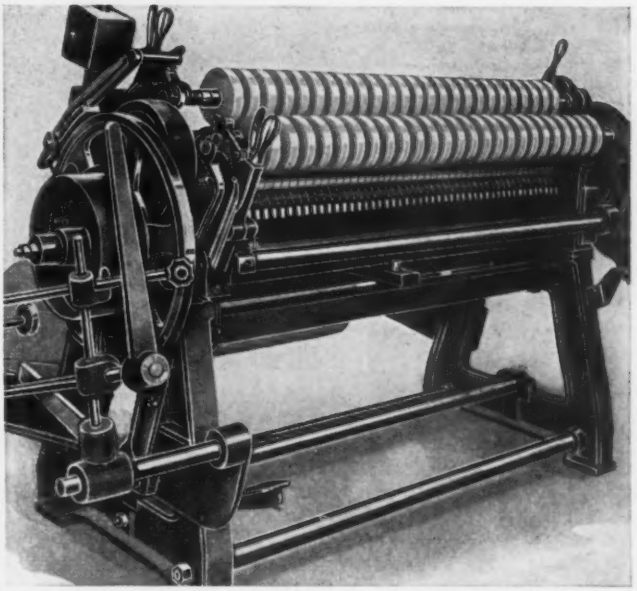

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Rayon & Silk Mill News

American Viscose Corp. will increase capacity of acetate-rayon plant at Meadville, Pa., 40% by the end of 1948. New buildings are 90% complete and installation of new equipment is well advanced. New construction will add nearly seven acres of floor space to present 25 acres.

Celanese Corp. of America, Rock Hill, S. C., expects to complete and have ready for production by June 1, 1948, a $40,000,000 plant. There will be 18 buildings, and 2,500 operatives will be employed in manufacture of synthetic yarn.

E. I. du Pont de Nemours & Co., Wilmington, Del., is considering Camden, S. C., as site for construction of multi-million-dollar industrial plant to produce new synthetic fiber.

Gibson Yarn & Weave Mill, Dallas, N. C., has been sold to New York interests, and W. H. Gibson, Jr., has resigned as president.

Glen Weaving Corp., Port Jervis, N. Y., has been purchased by John and Joseph Gorab, former owners of Cadillac Warping & Sizing Co., Hawthorne, N. J. New owners will erect 35,000 sq. ft. addition to house additional equipment.

Jebb Mills, Inc., New Bedford, Mass., newly organized, has started to install machinery in three-story building formerly known as Butler Mill. New concern will employ about 100, and will specialize in manufacture of rayon fabrics. Equipment will include 300 automatic looms, with auxiliary equipment including winding, warping, and slashing.

Lexington Silk Mills, Lexington, N. C., is installing machinery in modern brick addition, 130x300 ft. Mill is unit of Burlington Mills Corp., with Charles F. Coira, superintendent.

F. C. Mountabert Co., Midland Park, N. J., will occupy new $125,000 building on property adjoining old mill. Building has 24,000 sq. ft. of space on one floor, is air-conditioned, and has glass block windows. Company will install 100 new Crompton & Knowles jacquard label looms, and 64 broadsilk looms.

Ottaray Textiles, Inc., Anderson, S. C., has selected site and will construct plant to be known as **Rayotta Mill.** Site for new mill has been approved by H. J. Haynesworth, president, and Bob Small, secretary. Building will cost $300,000, and machinery about $750,000. Mill will manufacture fine rayon fabrics.

Pacific Mills, Boston, Mass., has purchased tract near Drakes Branch, Va., for future industrial development. It is expected that textile plant will be built in 1949. Pacific Mills is now operating plant in Halifax, Va., and has additional plant under construction at Brookneal.

Perfect Silk Co., Clifton, N. J., plans construction of modern building at cost of $300,000, if city council will vacate portions of East Fourth and East Third Sts., and pave section of Getty Ave. to permit erection of building.

Phoenix Mills, Kings Mountain, N. C., unit of Burlington Mills Corp., is installing additional card-room and spinning equipment.

Riegel Textile Corp. has recently taken over operation of 44,000-spindle yarn mill at Fork Shoals, S. C., after completion of purchase arrangements with Virginia Mfg. Co.

Schneider Mills, Inc., Taylorsville, N. C., rayon-weaving plant, will begin operations in March with 458 looms. Mill will be operated by the Schneider Silk Mills, New York, N. Y.

A. M. Smyre Mfg. Co., Gastonia, N. C., plans addition of 3,186 spindles for production of spun rayon, and enlargement of warehouse at Plant No. 3. Contract has been awarded to Ernest R. Morgan.

Wannalancit Textile Co., Lowell, Mass., has purchased former unit No. 5 of Nashua Mfg. Co., Lowell, Mass., and an administration building.

Washington, D. C.—Navy Department has made condi-

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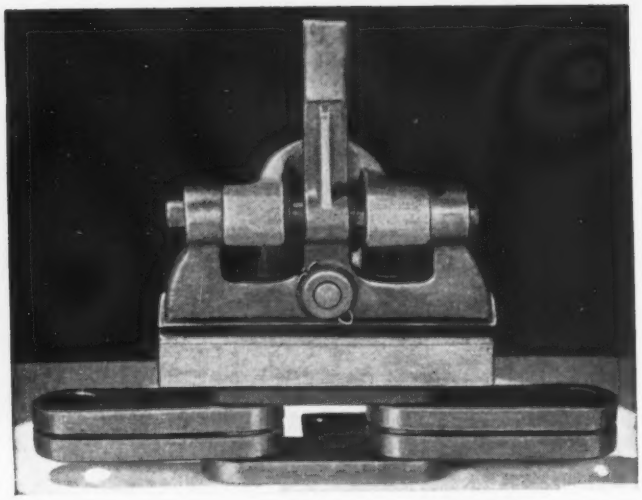

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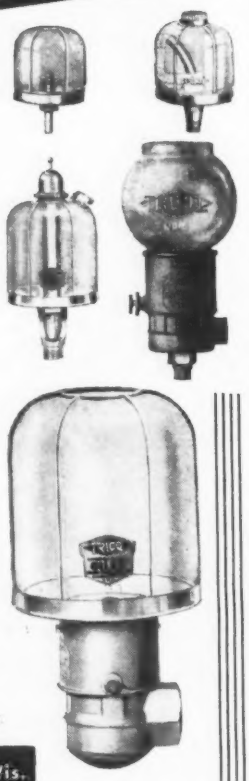

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tional plans to lease naval ordnance plant at Milledgeville, Ga., to J. P. Stevens & Co., Inc., New York, N. Y. Plans are contingent on approval of Armed Service Committee of Congress. Plant will be used by Stevens company for manufacture of textiles.

Virginia-Carolina Chemical Corp., Richmond, Va., has purchased the Aralac plant at Taftville, Conn., from National Dairy Products Corp., which is discontinuing operations in the casein-fiber field. Virginia-Carolina has found the Taftville plant suited to its operations in producing fiber from vegetable protein such as it now carries on at Carteret, N. J. National Dairy states that other more profitable uses for skim-milk products have resulted in a marked increase in cost of casein. Sale includes land, plant, and machinery but not the inventory of Aralac fiber.

Knitting Mill News

Asheville, N. C.—A. E. Rhash, president, plans immediate construction of first unit of proposed $1,000,000 women's hosiery mill that is eventually expected to employ 300 persons. Six-year building program is contemplated with three separate units having total floor space of 25,000 sq. ft. being planned. Mill will operate three shifts when completed.

Cinderella Knitting Co., new concern from Reamstown, Pa., has started operations in former Gehman Knitting Mills, Bally, Pa.

Clarke Mills, Jackson, Ala., is considering plans for $70,000 mill addition and installation of $150,000 worth of equipment.

William R. Friedman Co., New York, N. Y., has begun construction of mill building at Saluda, N. C., to house new full-fashioned hosiery plant.

Green Mountain Sweater Co., Woodstock, Vt., is considering rebuilding of mill, recently destroyed by fire.

Gardner-Warring Knitting Mills, Florence, Ala., has changed name to **J. T. Flagg Knitting Co., Inc.**

Halton Hosiery Mills, Inc., High Point, N. C., has moved plant to larger quarters at 119 S. Hamilton St. Mill operates 177 knitters, 50 ribbers, and 45 loopers at present; and new machines are on order. George C. Halton is president and general manager.

Heist-McCain Hosiery Corp., will open plant in Holshouser building in Rockwell, N. C., in the near future.

Humboldt Full-Fashioned Hosiery Mill, Humboldt, Tenn., has nearly completed construction of new plant that will include dyeing and finishing operations as well as knitting. Plant covers 115,000 sq. ft. of floor space, is one-story construction, and includes boiler house, machine shop, cafeteria, refrigeration equipment, fan room, and water softeners. Daniel Construction Co., Greenville, S. C., is contractor; and Lockwood Greene Engineers, Inc., New York, N. Y., is engineer.

Knit Products Corp., No. 2, Belmont, N. C., newly organized full-fashioned hosiery mill, will be in full operation within six months. Concern will employ 125 workers when under way.

May Hosiery Mills, Nashville, Tenn., plans one-story addition, estimated to cost about $150,000, with equipment. Erection will begin in spring.

Morristown Knitting Mills, Knoxville, Tenn., will install new unit to contain 75 knitting machines at branch plant at Rogersville, Tenn. New department will knit boys' crew socks.

The Pas, Manitoba—Antony Kozik has established new knitting and weaving mill and plans to manufacture woolen socks, mats, mitts, etc. Plant is most northerly of any of Canada's primary textile industry.

Port City Hosiery Mills, Wilmington, N. C., has sold its hosiery machinery to Burlington Mills and ceased manufacture of seamless hosiery on Mar. 1, under program which calls for expansion of company's production of lingerie.

Reading, Pa. — John H. Guenther, president of Aeronautical Supplies, Inc., is planning to open hosiery mill in West Lawn, Pa. He recently purchased 50 Scott & Wil-

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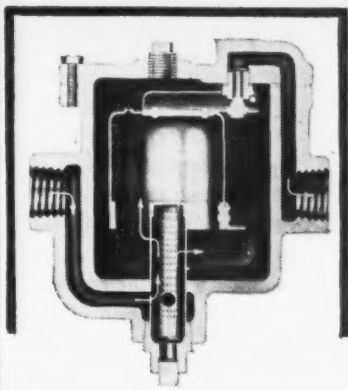

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liams 400-needle seamless knitting machines from Reading Maid Hosiery Mills, Inc., now being liquidated.

Sales Knitting Co., Martinsville, Va., has installed new knitting machines so that company will be able to enlarge production of sweat-shirts.

Standard Hosiery Mills, Inc., Burlington, N. C., has purchased Fayetteville Knitting Mills, Inc., Fayetteville, N. C., and plans long-range expansion program for plant that is expected eventually to increase production from 1,000 doz. pr. of full-fashioned hosiery to 10,000 doz. pr. per week. Program will require erection of additional building at Fayetteville to permit new machinery installations.

Skyland Hosiery Mills, Asheville, N. C., plans 100x70-ft., one-story, steel-and-concrete construction knitting mill. Three units will be added within next six years and finished plant will have 25,000 sq. ft. of floor space. Entire program is expected to cost $1,200,000. Initial production is scheduled for within three months.

Spruce Pine Hosiery Co., Spruce Pine, N. C., expects to have new building completed and ready for occupancy within two months. Building will be two-story, and contain 22,000 sq. ft. of space. Spruce Co. purchased complete machinery and equipment of hosiery mill at Granite Falls, N. C., where operations are being continued pending completion of new plant. Elmer Cline, of Spruce Pine, headed business men who purchased the mill.

Volunteer Hosiery Mills, Inc., Watertown, Tenn., has just gotten into production. New plant is occupying remodeled building in which about $75,000 worth of machinery has been installed. Company is capitalized at $100,000, with S. S. Sadlin, president.

Warlong Glove Mfg. Co. and **Conover Knitting Co.** plan to occupy new building now under construction at Conover, N. C., by middle of March.

Weldon Knitting Mills, Inc., Weldon, N. C., now owned by Carolina Mills Co., Dillon, S. C., will re-open in near future. W. A. McDuffie is in charge .

Dyeing & Finishing Plant News

Joseph Bancroft & Sons Co., Wilmington, Del., has authorized expansion and improvement program at mills, to be carried out over period of several months, comprising additional buildings and equipment. Cost, approximately $1,000,000.

Cliffside Dyeing Corp., Paterson, N. J., has new curing unit nearing completion. All equipment in department was manufactured by James Hunter Machine Co. New curing unit will be used for finishes that require heat, such as water-repellents, crease-resistants, and sterilizing. New, non-tension jig dye machine has also been installed.

Clyde Print Works, West Warwick, R. I., has been transferred from Industrial Trust Co., Providence, trustee under indenture, to Allied Textile Printers, Inc., New Jersey, and Lawrence Diamond, of Westchester County, N. Y.

Dixie Mercerizing Co., Chattanooga, Tenn., is asking bids for two additions, one and two-story, respectively, to Ridgeland finishing mill, and for two additions to Lupton City spinning mill, each two-story. Robert & Co., Atlanta, Ga., is architect and engineer.

Jennings Cotton Mills, Lumberton, N. C., is installing continuous bleaching process for knit goods. Dyeing equipment is also being added by plant which will begin commission bleaching and dyeing of knit goods in near future.

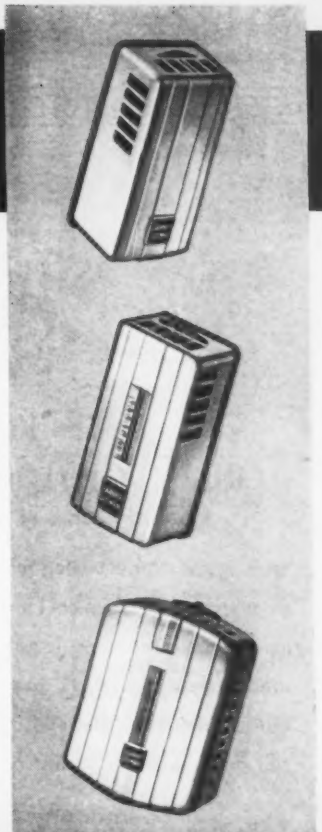
National Dyeing & Printing Co., Allentown, Pa., will be operated by Allentown Converting Co. Management and personnel will remain the same.

Safie Bros. Co., Inc., New York, N. Y., converter, has purchased Acme Finishing Co., Pawtucket, R. I., and will operate plant under name of **Paramount Printing & Finishing Co.** There will be no change in plan of operations at plant.

J. P. Stevens & Co., New York, N. Y., plans to build textile finishing plant costing about $15,000,000, near Kollock, S. C. Company has purchased tract of land near Kollock.

BARBER-COLMAN

TEMPERATURE CONTROL EQUIPMENT



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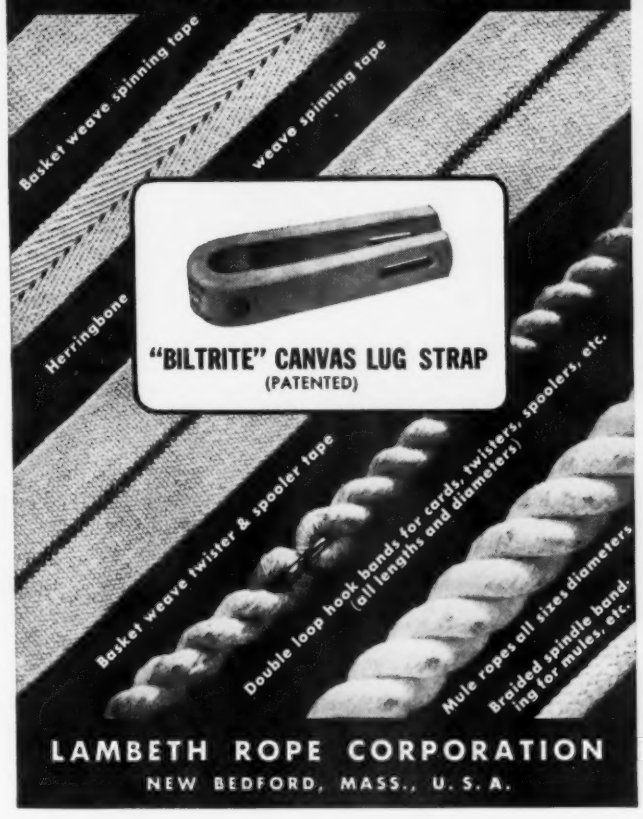
FOR SPINNING, TWISTING, SPOOLING, WEAVING


Basket weave spinning tape
weave spinning tape
Herringbone
"BILTRITE" CANVAS LUG STRAP
(PATENTED)
Basket weave twister & spooler tape
Double loop hook bands for cards, twisters, spoolers, etc. (all lengths and diameters)
Mule ropes all sizes diameters
Braided spindle banding for mules, etc.

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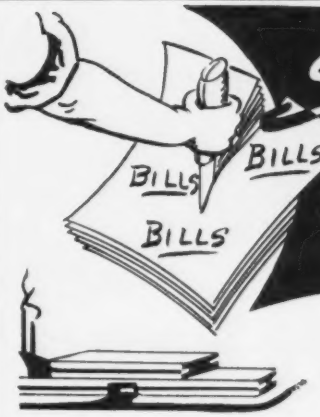

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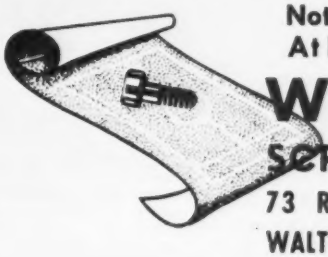

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NEWS ABOUT Men

Charles H. Dyson has been elected president of Textron, Inc., and executive vice president of Textron, Incorporated. Textron, Inc. is principal operating subsidiary of Textron Incorporated. **Royal Little** is president of parent company and chairman of board of subsidiary. Mr. Dyson will supervise generally all operations throughout Textron system.

B. B. Gossett, of Charlotte, N. C., has been elected member of board of directors of Dan River Mills, Dan River, Va. A past president of American Cotton Manufacturers Association, he directed operations of Gossett Mills until recently, operating 130,000 spindles in three South Carolina cities and 114,500 spindles in two North Carolina cities.

Frederic A. Williams, president of Cannon Mills, Inc., Kannapolis, N. C., has retired as president after 46 yr. of service with the company. He is succeeded by **Stanley Phillips,** executive vice president, who has been with the company since 1926. Mr. Williams will continue as vice president of Cannon Mills Co., parent organization.

J. Wilbert Wood, president of Industrial Cotton Mills, Rock Hill, S. C., has also been appointed manager of Aragon plant of Aragon-Baldwin Mills, Rock Hill, succeeding **George P. McClenaghan.** This will in no way merge operation of two units.

H. L. Dawes has been elected president and treasurer of H. C. Townsend Mill, Anderson, S. C., following mill's reorganization. **E. H. Johnson** was named secretary. Directors include **Dr. T. C. Stone, H. L. Dawes,** and **W. Webster, Jr.,** all of Greenville. Plant was recently purchased by Dawes interests.

Earle R. Stall has been re-elected president of F. W. Poe Mfg. Co., since mill was taken over officially by new owners, Ely & Walker Dry Goods Co., St. Louis, Mo. **W. W. Rogers** was named vice president; **C. L. Steadman** was re-elected secretary and **Walter R. Chandler** was named treasurer. New board of directors includes **E. P. Cave,** of St. Louis, head of the dry-goods firm; **M. Weldon Rogers,** of St. Louis; **Charles A. Gibson,** of Calhoun Falls; **Marcus W. Carter,** of Tarboro, N. C.; Mr. Stall, Mr. Roberts, Mr. Steadman and Mr. Chandler.

Robert R. Schmidt has been elected vice president of Shreve & Adams, Inc., Cleveland, Tenn. He is a director of Shreve & Adams and vice president and director of Sanda Hosiery Mills, Cleveland, Ohio.

J. Paul Smith has been elected president of Visking Corp., Chicago, Ill., to succeed the late Erwin O. Freund. Mr. Smith has been with company since 1941 when he was made vice president.

J. W. McCoy retired Jan. 1 as vice president and member of executive committee of E. I. du Pont de Nemours & Co., Wilmington, Del. He will continue as director. Mr. McCoy has been with company since 1902.

Charles W. Bailey, formerly assistant to **Walter E. Hildick,** vice president of Textron, Inc., has been put in charge of production development and quality control at company's plant in Nashua, N. H. He succeeds **James W. Logan,** resigned.

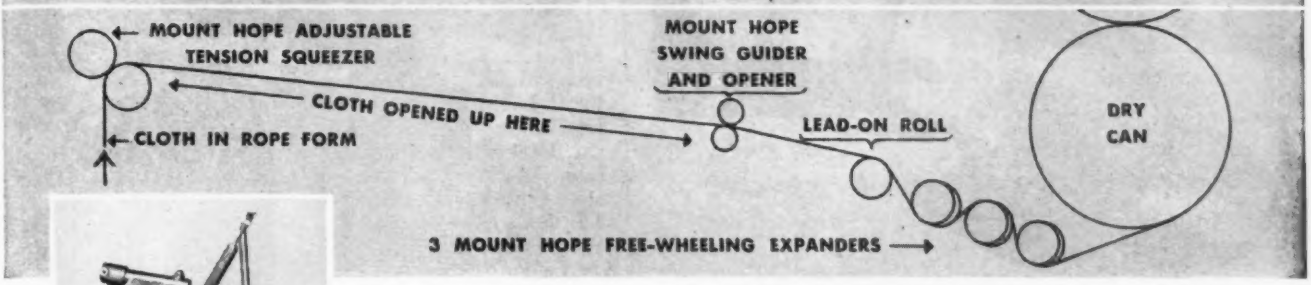
Wm. H. Terry, vice president and director of Canadian company of Julius Kayser & Co., Ltd., Sherbrooke, Que., has recently been appointed vice president of parent company in New York, N. Y. **George H. Carr,** vice president in charge of manufacturing in Canada, succeeds him.

E. Earl Traver has been elected vice president and secretary of Unity Knitting Co., Inc., Union, S. C.

J. D. Hereford, formerly with accounting firm of Lybrand, Ross Bros. & Montgomery, New York, N. Y., has been named assistant treasurer

GETTING MAXIMUM WIDTH *on Rayon Marquisettes*

As Practiced by a Well Known Finisher


MOUNT HOPE ADJUSTABLE TENSION SQUEEZER
CLOTH OPENED UP HERE
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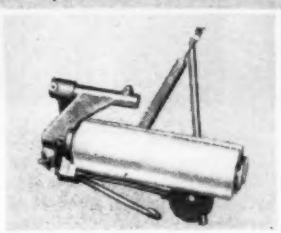
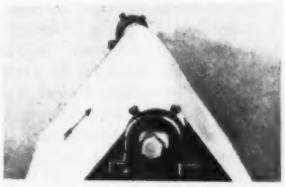
LEAD-ON ROLL
DRY CAN
3 MOUNT HOPE FREE-WHEELING EXPANDERS



GUIDERS



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SWING GUIDERS AND OPENERS— Saving in labor; handle goods safely, easily adjusted, quiet.

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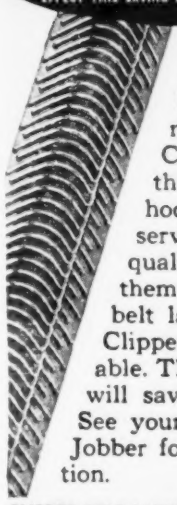
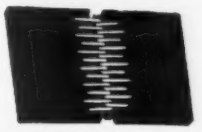


In over 30 years experience manufacturing belt lacing equipment *exclusively*, Clipper has developed the world's finest belt hooks. To get the best service from these top quality hooks apply them with a modern belt lacer such as the Clipper No. 9 Portable. This combination will save you money. See your Mill Supply Jobber for demonstration.

No. 9 Portable Lacer



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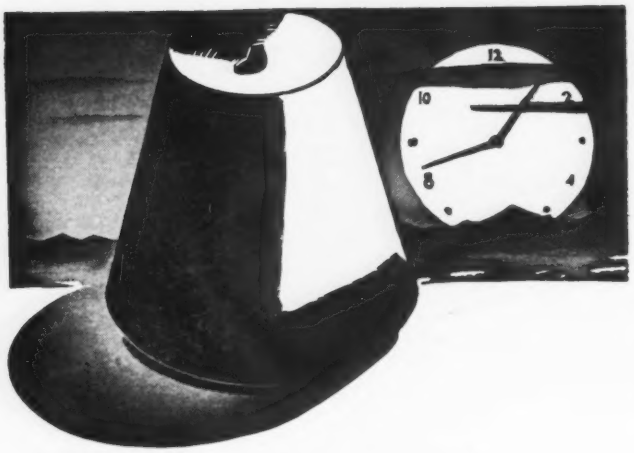

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Time . . . the extra time spent in Hampton's unhastened production methods builds a stronger, smoother-running, more uniform yarn for you . . .

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of May McEwen Kaiser Co., Burlington, N. C., succeeding **Charles Faircloth**, resigned.

Erwin R. Lehmann, director of personnel of West Point Mfg. Co., Lanett, Ala., has been named vice president. **Joe L. Lanier** has been elected president of Columbus Mfg. Co., Columbus, Ga., and **William Whorton**, director of Dixie Cotton Mills, La Grange, Ga. Both mills are owned by West Point company.

Andrew J. Lydon, of Macon, Ga., and **W. N. Banks**, of Grantville, Ga., have been elected to board of directors of Bibb Mfg. Co., Macon, Ga.

Dr. Frederick Bonnet, American Viscose Corp., has been elected an honorary member of the American Association of Textile Technologists, New York. At the plaque-presentation ceremony, presided over by **Ephraim Freedman**, president of AATT, his services to the textile industry were eulogized by **William B. Olmstead, Jr.**, and **William D. Benson**, of American Viscose Corp.; **Henry F. Herrmann** of General Dyestuff Corp. and president of the American Association of Textile Chemists & Colorists; and **Col. Lewis Saunders**, president of Textile Research Institute.

Raymond J. Lee, general manager of Lockport Felt Co., Lockport, N. Y., has been elected executive vice president. He is also treasurer of firm.

Robert W. Linscott, assistant general superintendent of Lincoln Mills of Alabama, Huntsville, Ala., has been promoted to assistant treasurer, and will be connected with Boston office.

Carl H. Fox, vice president and general manager of Red Bank Mills, Lexington, S. C., has been named manager of Bev-Wynn Products Mill, and Dottie Lou Mills, Inc., Statesville, N. C.

Gordon Hanes, formerly secretary of Hanes Hosiery Mills Co., Winston-Salem, N. C., has been promoted to vice president. **Clifford W. Perry**, formerly office manager, succeeds him.

E. C. Parker is now operating Kalyn Mills, West Warwick, R. I. Mill was formerly owned by B. I. Kaufman, New York, N. Y.

***ALVIN A. SCHOENBERGER**, assistant sales manager of Industrial Rayon Corp., New York, had his 10 yr. as sales head of the knitted fabrics division marked by a dinner in his honor given by members of the knitted underwear industry in New York on Jan. 7. He joined Industrial as assistant advertising manager in 1935, was named advertising and sales promotion manager in 1937, and cloth sales manager in 1938; in 1943 he also took over sales of the company's knitting yarns.*

E. Earl Traver has been elected secretary and vice president of Unity Knitting Co., Union, S. C. He was formerly associated with Conrad "51" Hosiery Co., Clifton, N. J.

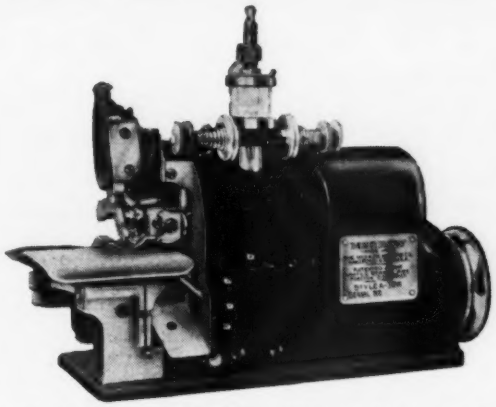
Sigmund Sternberger has been elected member of board of directors of Cone Mills Corp., Greensboro, N. C.

Frank J. Boynton is the new manager of the full-fashioned division of Chadbourn Hosiery Mills, Inc., Charlotte, N. C. A veteran of 25 yr. experience in hosiery manufacturing, Mr. Boynton will supervise the company's full-fashioned manufacturing operations at plants in Charlotte, Burlington, and Siler City, N. C. and Shenandoah, Va.

Louis A. Oberly has resigned as research director for Hartford Rayon Corp., Rocky Hill, Conn., and is now associated with research staff of Industrial Rayon Corp., Cleveland, Ohio.

Russell L. Hardt has been named director of production of E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. He was formerly manager of Du Pont plant at Niagara Falls, N. Y.

Rolliston W. Linscott, Jr., formerly assistant to general



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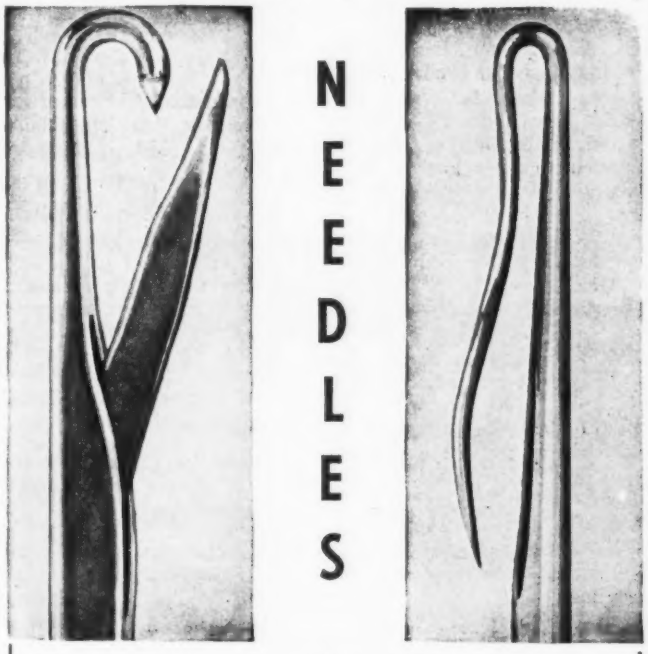

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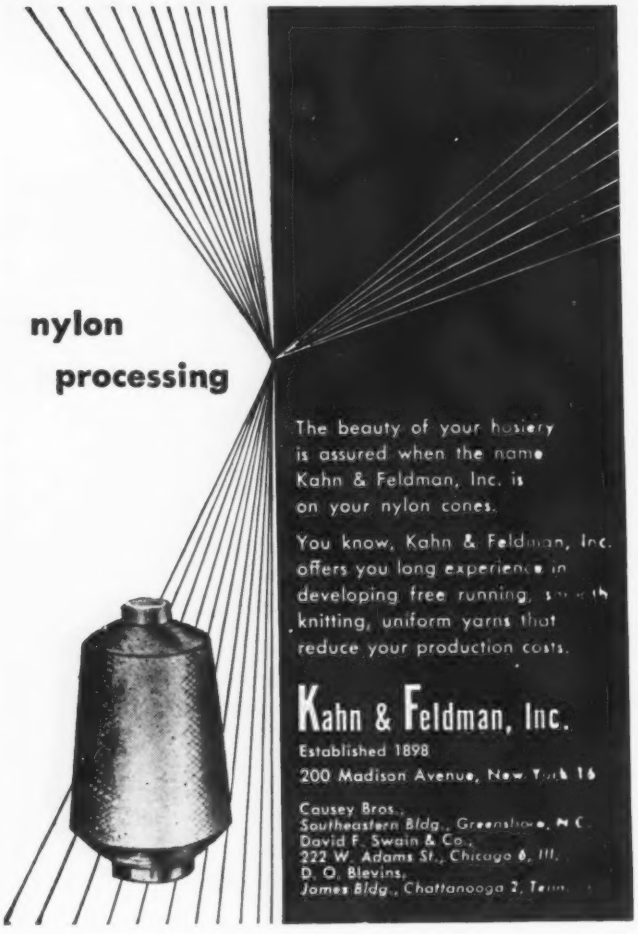
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Charles F. Rogers, Jr. — Manager

NEWS ABOUT MEN

manager of Lincoln Mills, Huntsville, Ala., has been made assistant treasurer, and will maintain his office in Boston, Mass.

Thomas E. Goulet has joined Maplewood Yarn Mills, Inc., Fall River, Mass., as superintendent of new package dye plant. Company has installed entirely modern equipment and will finish dyed and natural yarns. It will also do commission dyeing. Mr. Goulet was formerly superintendent of dyeing of Atlantic Rayon Corp., Providence, R. I., and subsequently held same position at Woodlawn Finishing Co., Pawtucket, R. I.

Herman L. Weisler has been appointed general manager of knitted-fabrics division of Barbet Mills, Inc., Lexington, N. C. He was formerly director of operations for Celanese Corp. of America at Hopewell, Va.

Robert R. McGee, formerly technical supervisor of Reid Mills unit of United States Rubber Co., Hogansville, Ga., has been appointed to technical staff of textile division, with headquarters in New York.

J. Allen Austin, Jr., personnel and assistant production manager of Crown Hosiery Mills, Inc., High Point, N. C., has been named vice president in charge of personnel and production.

A. W. Gunn, formerly secretary and comptroller of Callaway Mills, LaGrange, Ga., has been appointed treasurer and comptroller. **Charles W. Allen** succeeds him as secretary.

Wilton Todd is new general manager of Newberry Textile Mills, Newberry, S. C., succeeding **R. C. Baker,** who has accepted position with Pacific Mills, Columbia, S. C. Mr. Todd has been connected with Kendall Mills, Boston, Mass., since 1924. Before coming to Newberry in 1936 as manager of Mollohon plant, he was with Kendall Co. at Paw Creek, N. C. In 1946 he was transferred to Pelzer, S. C., as manager of two Kendall mills there.

William Shambaugh, Harry C. Piper, Jr., and **Sidney Huston** have been elected to board of directors of Wayne Knitting Mills, Fort Wayne, Ind.

Bruce C. Baker has become assistant general superintendent of Olympia unit of Pacific Mills, Columbia, S. C. He was formerly with Springs Cotton Mills, Chester, S. C.

William H. Bratton has been promoted to electrical department of plant of American Viscose Corp. at Roanoke, Va., to fill vacancy created by retirement of **Fred Austin Lembert. Arthur T. Klinger** will become assistant foreman.

Loren Clark has been named colorist of Glasgo Finishing Co., Glasgo, Conn. He succeeds **Louis Graichen** who becomes night superintendent, filling vacancy created by retirement of **Wilfred Hilton.**

Joseph A. Waugh has become night superintendent for Nathan Schwartz & Sons, Philadelphia, Pa.

Frank Oliver, formerly with Nemasket Mill, Taunton, Mass., is now overseer of carding for Fisher Mfg. Co., Fisherville, Mass., succeeding **L. M. Bennett.**

Paul Martin Platzman has been appointed technical director of Quitman Mills, Inc., Quitman, Ga. He was formerly associated with Alexander Smith & Sons Carpet Co., as textile engineer.

Elwood M. Proctor has been named manager of plant of Bemis Bros. Bag Co. in Seattle, Wash. He succeeds the late E. J. Gregg.

A. Coutemanche, overseer of finishing, has left Guild-Northland Mills, Laconia, N. H.

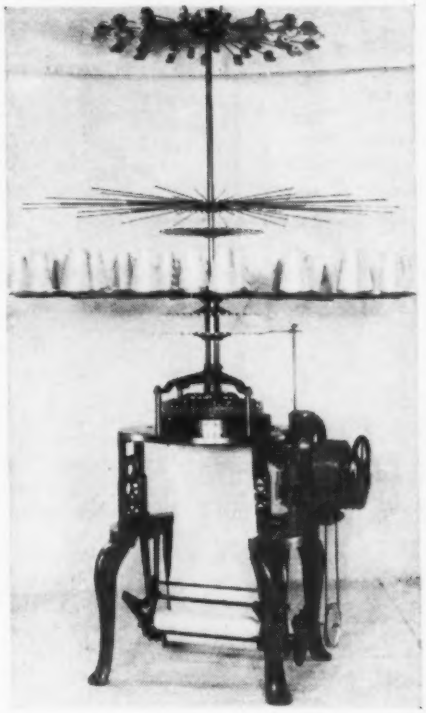
Charles Finney, of Nashville, Tenn., has become personnel manager of J. T. Flagg Knitting Co., Inc., Florence, Ala.

Frank M. Higgins is now overseer of weaving and dressing for Baxter Woolen Mills, Somersworth, N. H.

Samuel LaVoie is now overseer of dyeing for Packard Mills, Caryville, Mass.

W. G. Phelan is now overseer of dyeing and finishing at Gilsum Woolen Mills, Gilsum, N. H.

Maurice Phillips, superintendent of George Davis Woolen Mill, Bristol, R. I., is leaving to accept similar posi-



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Established 1846

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Box or Label Printer?

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For Circular, Full Fashioned, Tricot and Milanese Knitting Frames, also Narrowing, Stand, Transfer Points and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

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for seamless hosiery knitting

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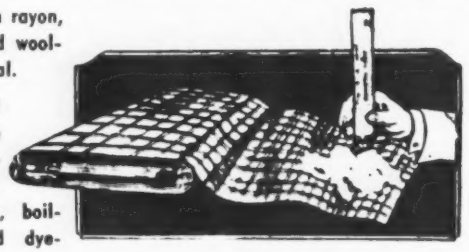

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tion with Gibson Woolen Mills, Tilton, N. H.

H. G. Barlow, formerly superintendent of Gardner Woolen Mills, Gardner, Mass., is now with Bennington Mills, Bennington, Vt.

Henry Bernard is now overseer of weaving, and **Russell Howard,** master mechanic for Royal Duluth Woolen Mills, Duluth, Minn.

Durward Costner, formerly superintendent of printing division of Riegel Textile Corp., Ware Shoals, S. C., has accepted position as director of research for Rock Hill Printing & Finishing Co., Rock Hill, S. C.

J. E. Ormiston, overseer of dyeing, has left Baltic Mill of American Woolen Co., at Enfield, N. H.

Robert T. Stutts, for last two years superintendent of Liberty Mills Nos. 2 and 3, Liberty, S. C., has resigned. **C. A. Campbell** succeeds him.

J. L. Thompson is now overseer of carding for Draper Bros. Co., Canton, Mass., succeeding **T. Byron.**

JAMES H. McGRAW, founder and honorary chairman of the McGraw-Hill Publishing Co., died Feb. 21 in San Francisco, Calif. Funeral was in New York, Feb. 26. Details of Mr. McGraw's career will appear in Textile World for April, 1948.

Alex. Mason has been promoted to superintendent of weaving at Uxbridge Worsted Co., Uxbridge, Mass., succeeding **F. J. Striebel,** resigned.

L. F. Bois, overseer of weaving, has left Cheney Bros., South Manchester, Conn.

V. J. Degan is overseer of finishing on second shift at Vassalboro Mills, North Vassalboro, Me.

Mark M. Fink is now overseer of slashing at Cheney Bros., South Manchester, Conn.

OBITUARY

Abel C. Lineberger, 90, active in developing the combed-yarn branch in the textile industry in North Carolina, died Dec. 29 at Charlotte, N. C. He built, during a half-century, mostly around Belmont, a chain of fine-yarn spinning mills with over 250,000 spindles. At the time of his death he was president of 16 textile corporations which he had helped organize and build. In addition, he was a director in numerous other textile operations and was vice president of the Bank of Belmont, which he helped to organize. The textile mills which he headed are: The Chronicle Mills, Imperial Yarn Mills, Majestic Mfg. Co., National Yarn Mills, Climax Spinning Co., Crescent Spinning Co., Acme Spinning Co., Linford Mills, Perfection Spinning Co., Piedmont Processing Co., South Fork Mfg. Co., Hatch Full Fashioned Hosiery Co., Belmont Box Co., Knit Products Corp., all of Belmont; Rowan Cotton Mills, Salisbury, and China Grove Cotton Mills, China Grove.

Sidney Blumenthal, 84, chairman of the board of Sidney Blumenthal & Co., died Jan. 10 in New York.

George G. Guenther, 82, of the George G. Guenther Hosiery Mfg. Co., Reading, Pa., died recently at Reading, Pa.

Arthur M. Reis, 64, president of Robert Reis & Co., New York, since 1919, died Dec. 23 in New York.

William W. Hobbs, 54, at one time with Shaw & Co., Boston, Mass. and also for 7 yr. head of Sudanette Co., died Dec. 8. His father is Franklin W. Hobbs, chairman of the board of William Whitman Co. Mr. Hobbs at the time of his death was with the advertising agency of Wesley Associates, New York.

Edwin Fleming Lucas, 53, Greensboro (N. C.) textile manufacturer and civic leader, died Dec. 30 at Boston. He was president of Mathews, Crews & Lucas Cotton Co.

John A. Burns, 69, chairman of Monarch Knitting Co. and associated with that firm since 1903, died in Dunnville, Ont., recently. From 1928 to 1945, he was general manager

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318 Montgomery Bldg., Spartanburg, S. C.

and later president of the company.

Henry Janssen, 81, co-founder of Wyomissing Industries, Reading, Pa., died at his home in Wyomissing Jan. 28. He came to the United States from Barmen, Germany, in 1888. In partnership with Ferdinand Thun, he set up a small machine shop in 1892 at 222 Cedar St., Reading, which developed into a group of three large companies located on a 60-acre site. These are Textile Machine Works, Berkshire Knitting Mills, and Narrow Fabric Co. Mr. Janssen's philanthropies in the Reading area over the years run to many millions of dollars. He was president of: Textile Machine Works, Narrow Fabric Co., Nufashond Narrow Fabric Co. of Canada, Ltd., Delta Realty Co., Tulpehocken Farms, Inc., Henry Janssen Corp., Henry Janssen Foundation, and The Reading Hospital. He was vice president of: Berkshire Knitting Mills, Delta Finance Co., People's Trust Co., and Carl Shurz Memorial Foundation.

Otto W. Schaum, 81, chairman of the board of Fletcher Works, Inc., Philadelphia, died recently. He was a founder of Schaum & Uhlinger, which later became Fletcher Works, and was president of the latter company for many years.

Fred C. Bryant, field representative of Curtis & Marble Machine Co., Worcester, Mass., and in charge of that firm's New York office for the last 38 yr., died Jan. 11.

Leon S. Dure, Sr., 73, a former president of Southland Knitting Mills and also Manchester Mfg. Co., died at Macon, Ga., Jan. 10.

Lawrence G. Preston, executive vice president of American Maize Products Co., died recently. He had also been associated with Penick & Ford, Ltd., Corn Products Refining Co., and Snyder Packing Co.

Byron A. Allen, 51, vice president and superintendent of Great Barrington Mfg. Co., Great Barrington, Mass., died recently.

Charles R. Gidley, 66, treasurer of New Bedford Textile Co., New Bedford, Mass., died recently. He had held the office of treasurer for 29 yr.

Henry Janssen

William E. Johnson, 02, secretary of Lydia Cotton Mills, Clinton, S. C., died recently. He had been associated with Lydia for more than 40 yr.

Elzy Erskine Smith, 79, for a number of years connected with the E. E. Smith & Son, Gastonia, N. C., textile machinery, died Jan. 12.

George E. Leighton, 76, former manager of Barre Wool Combing Co., Barre, Mass., for 10 yr., died recently at Bristol, R. I. He retired in 1930.

Charles Turner, 60, Skowhegan, Me., manager of the Maine Spinning Mill for 20 yr., died Jan. 12.

Brice S. Hull, Pittsburgh branch manager of Solvay Sales Div., Allied Chemical & Dye Corp., died Jan. 2.

Hillman O. Fallon, 44, director of industrial relations for Goodall-Sanford, Inc., Sanford, Me., died Jan. 1.

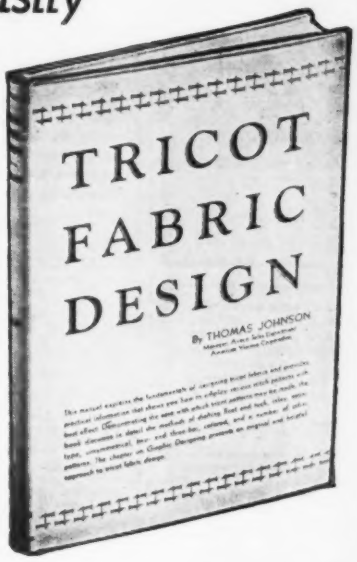
Frederick A. Hewat, 57, son of the founder of Strong, Hewat & Co., Inc., Briggsville, Mass., and office manager of the textile firm for 26 yr., until his retirement three years ago, died recently.

Edward A. Gray, former general manager of Pyralin Div. of E. I. du Pont de Nemours & Co., Wilmington, Del., died recently.

Jesse A. Knight, 81, who held executive positions with several textile mills died recently in New Bedford, Mass. He was at one time superintendent of Harris Mfg. Co., Phoenix, R. I., and Lawton Spinning Co., before heading Cohannet Mills, Taunton, Mass. He had also been manufacturing agent at Manomet Mills, New Bedford, Mass.

How to design tricot products *swiftly--easily*

Let this manual show you, step-by-step, the design of tricot fabrics in varying stitch patterns



Here's a compact, complete design manual showing the fabric designer, quickly and simply, the methods of designing tricot fabrics in varying stitch patterns. The manual demonstrates, first, the basic fundamentals of tricot fabric design. It describes how the fabric is formed, and the various stitch-making elements and their functions. It supplies diagrammatic descriptions of the actual machine process. The manual then provides a simple, easily understood *method* of drafting tricot patterns, demonstrating the ease with which tricot patterns may be made. Methods of drafting various types of stitch patterns—pique and corduroy, meshes and nets, gaiting, float and tuck, inlay, etc.—are included.

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Here are some of the details of pattern design the manual supplies:

- —**stitch-making elements and their functions**
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- —**how to draft the patterns**
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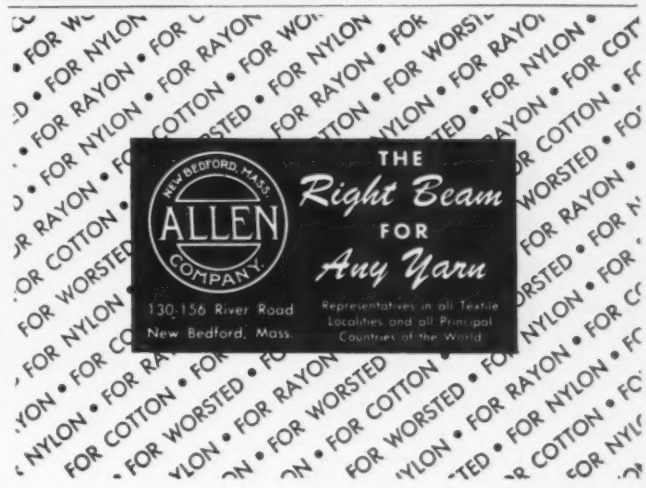

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(Additional Business Opportunity advertising on page 285)

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6—Stafford & Holt 8 ga. 13", 14", 15", 16", 17", 18"
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10—Ruth, Wildman, General Works, Brinton, 8 ga. cuff
1—Crane torque, 7½", 2½ ga.
1—Paine winder, 24 spool
1—Hoffman press, w/boiler 160 lb. pressure
1—Mangle, gas
1—MacCrarry brush Mod. S 26
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Additional Wanted Advertising on page 286

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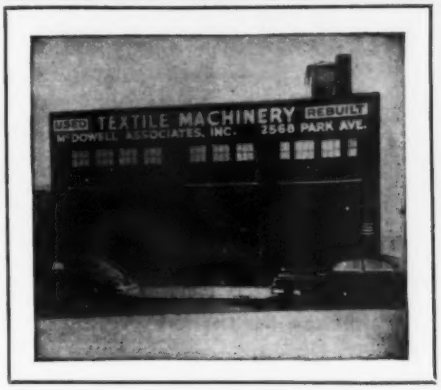

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3—CARDS, WOOLEN, 48"x48", iron, 3 cylinder, rub condensers, fully clothed.
1—CLEANER AND OPENER, 8 blade Buckley Beater.
2—CONDENSERS, TAPE, 60" 120 ends.
24—LOOMS, C.&K. 4x1, automatic, 47".
57—LOOMS, C.&K. 4x1, automatic, 85".
10—LOOMS, C.&K. 4x4, 92".
100—LOOMS, DRAPER "E", 40".
90—LOOMS, DRAPER "K", 40".
5—MULES, 288 spindles, 2"-2¼" gauge.
7—MULES, 360 spindles, 2½" gauge.
2—MULES, 480 spindles, 1¾" gauge.
1—PICKER, MIXING, 48", with Feeder.
1—PICKER, FEARNAUGHT, 48", with Feeder.
1—SPINNING FRAME, WOOL, 180 spindles, 2½" ring, 4" gauge.
4—WINDERS, #30 CONE, 40-100 spindles, late type slub catchers and waxers, motor driven.

1 COMPLETE DYEING PLANT, Rotary Dyeing Equipment

1 COMPLETE WOOLEN MILL

CABLE ADDRESS—NOMACDOW—NEW YORK

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AGER, Wood, Acid, New
AGER, Stainless Steel Acid
AGER, Tower, New
BEAMER, 60" Van Vlaanderen
BEAMER, 60" with steaming drum
BLOWER, New, Squirrel cage type
BLOWERS, R. C. 8x5 3/5" 350 cu. ft. per min.
BOIL OFF TANK, 47"x72"
BUTTON BREAKER, V.V. spiral, 60"
BUTTON BREAKER, V.V. 50"
CALENDER, Kasterinsky 36" for knit goods
CLIPS, V.V. & W. & J.
DOUBLER, Windle, 60"
DRY Cans, set of 8, 72"x23" dia. horizontal
DRY CANS, set of 32, 50"x23"
DRY CANS, 7 Morrison 48" high pressure
DRYING DRUM, 61" face x 24" dia.
DRYER, P&S Loop, Revolving Sticks
DRYER, Van Vlaanderen 7 tier net
DYE BECKS, Stainless steel 4' to 20' New
DYE TUBS, 6' Wood complete motorized
DYEING MACHINES, Smith Drum Paddle type
DYEING MACHINES, Smith Drum Pocket type
DYEING MACHINE, Rochester Rotary 30"x20", 3 pocket 20 lb. capacity
EXTRACTOR, 26" Amer. Motor
EXTRACTORS, Beam 50" & 60" BB
EXTRACTOR, K & G 48", rubber lined basket
FLAT FOLDERS, Elliott & Hall adjustable
FULLING MACHINES, L. F. Hemmer double line
HOISTS, Budget 1 ton ½ ton capacity
INFRA RED units complete with blowers
INSPECTION TABLES, 47"
JIGGS, 90"
MOTORS, ¾ to 5 HP AC/DC 220 volt
PAD, 2 roll 50'
PADDER, 90"
PALMER QUETCH UNIT, Butterworth, 54"
PRINT MACHINE, 10" sample or ribbon
PRINT MACHINES, 6 & 8 Color 60", Waldron
PUMP, Worthington Vacuum, 18x9 complete with 25 HP motor
QUETCH, 2 roll BB 50" & 60" ball bearings
QUETCH, 3 roll, 50" Morrison, motorized
RIBBON FINISHING MACHINE
SCUTCHER, NEW
SEWING MACHINE, 60 ABB with 72" carriage
SHEAR, Hermas, 4 knife 70" wide
TENTER FRAME, Pin W&J 30'x220" wide
TUBERS—Paterson variable speed motors
TUBER, V.V. with doubling attachment
WASHERS, slop, New Stainless Steel
WASHER, Steel, G.L. Type
WOOL WASHERS, J. Hunter 6'

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60 pr. Morseberg adjustable flanges, 18" dia, 5½" barrel

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500,000 restrung dupes

500,000, 11" restrung straight and duplex heddles

65 pr. Allen 18" adjustable flanges, 5½" barrel

175 pr. Allen 18" adjustable flanges, 5" barrel

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250,000—Regan Mech. Drop Wires, 135-135½A.
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Lot of #50 & #90 Universal Winder Parts

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2—60 inch Whitin Double Rub Tape Condensors.
1—Serial No. 375066-K4DA built 1937.
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Both machines have parts to run either 120 or 96 ends. Quantity spare parts machines. In very good condition. Can be seen running up to March 1st, 1948. Delivery about March-April 1948. Subject to prior sale.

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Five Whitin drawing frames, four deliveries each, total of twenty deliveries, 12" coilers, 36" can table, 1¾" diameter front rollers, steel top rolls, Model F. 1919 year.

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10 Widmer Narrow Fabric Looms—

In operating condition on mill floor

★ 1918 Model ★ Individually Motorized ★ 27 Ft. Long ★ 30 Hook ★ ¾ H.P. 220 Volts

DOUBLE ACTION
COMPLETE WITH THE FOLLOWING BATTONS:

6—165 SPACES
1—135 SPACES
2—114 SPACES
1— 99 SPACES
2—81 SPACES

7 INDIV. MOTORIZED KNAPP WARPERS COMPLETE WITH CREELS

Approx. 20 years old—2 use 6 bobbins, 5 use 4 bobbins, up to 3½" head, 10" overall 29" roll—all with automatic stop devices on creel

8 Single Deck SIPP WINDERS—90 Spindles Each
1 Single Deck SIPP WINDER —64 Spindles
Belt driven, can be indiv. motorized. Complete with spindles, swifts, and bobbins.

Almost NEW 3 COCKER
USED ONLY 16 MONTHS 11 DRUM
60" Wide 30" Diameter Drums SLASHERS

STAINLESS STEEL DRUMS, 5 BEAM TAKE UPS DOUBLE QUETSCH, RELIANCE SINGLE MOTOR VARIABLE SPEED DRIVE 15 HP., 1150 RPM. TAYLOR INSTRUMENTS AND PIPING. SPECIAL REEDS 1½" WIDE, JOHNSON JOINTS BEARINGS AND FLEXIBLE TUBING.

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600 3 hp. 220 volts, 60 cycles, in excellent shape.
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80 Spindles, Individually Motorized, Late Type Machines Complete In Every Detail

9 Looms - 52"
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All individually motorized 3 HP, 3 phase 220-440 volts, 60 cycles, 84 spindles, 5¼" spacing, 3⅛" Whitin rings, double 2" feed rolls. Excellent condition. Bobbin Equipment with machines.

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All individually Motorized 2 HP, 3 Phase, 440 Volts, 60 cycle motors. Bobbin Equipment with all machines.

4—100 spindle, 5¼" spacing, 3" Eadie rings, single 2" feed rolls.
4—112 spindle, 5¼" spacing, 3⅛" Whitin, single 2" feed rolls.

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10 x 4½ Cotton Roving Frames
For 128 Spindle—Model J3
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Enough to equip 2000 Spindles
1944 to 1945 Models

This Includes all parts above the beam except Top Rolls, Trumpets & Operating Levers.

Used—but some a very short period.

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For Saco-Lowell Frames

Enough to equip 10,000 to 20,000 Spindles less a few Miscellaneous Parts.

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Stainless Steel Lined, Tank 36" Diameter by 54" deep—Single Spindle.

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30' long — open type — maximum width 72". 2 Steam Boxes and 2 Heating Coils with traps. Straight-away Model

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72" Width Cloth Roll—Chain Drive.

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All Stainless Steel 60" Basket

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1—Gessner 66" Heavy Duty Press
1—Voelker 65½" Double Bed Press
1—P.&W. AWC Cloth Rolling Machine
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30—Barber Colman High Speed Section Beams, 24" Head, 12" Barrell, 54¼" Between Heads.
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36—40" Model D, modified Draper Looms, automatic, dobby heads.
12—45" Same description as 40" looms.
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ALL ABOVE LOOMS HAVE INDIVIDUAL MOTORS,
220 VOLT, 60 CYCLE, 3 PHASE

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20—Model "K" Automatic Draper 47½" Reedspace 20 hook Dobby, motorized electric stop motion, completely reconditioned with feeler and cutter.

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Eastwood and Sipp Warpers 84", 72" and 60".
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Harness shafts, all sizes.

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4—#90 Universal Winders with Bunch Builders
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plus all equipment to make a complete unit.

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Set of 36" squeeze rolls

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Heddles and drop wires.
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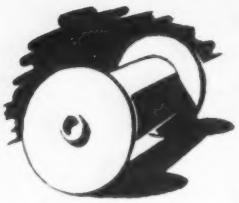

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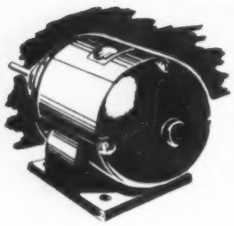

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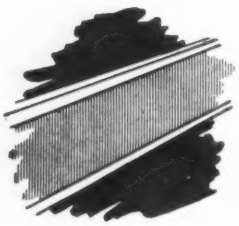

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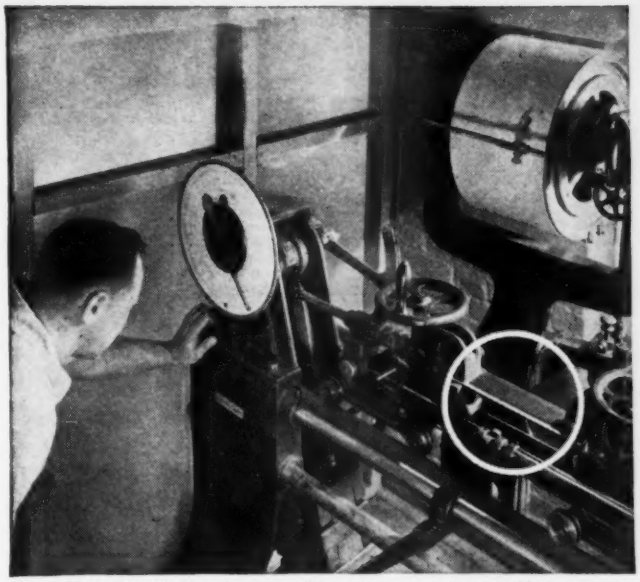

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